Winter, 1984/5
AFRP 85-1

- Project Constant Watch: A Korean Affair
- A-10 Beddown — Sweet Dreams
- Rodeo!

Air Force Engineering & Services Quarterly

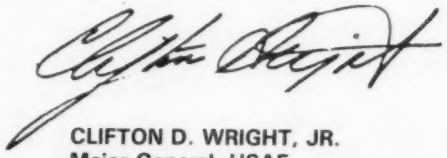
From the Director

Two Different Worlds

All of us in Engineering and Services must realize that our primary mission is to be ready to do our wartime jobs. It's not always easy to keep that in mind. For many years we relegated readiness to the bottom of our priority list. Training, equipment and force structure were largely ignored and, due to our own failure to convince them otherwise, commanders overlooked the vital role their Civil Engineers and Services personnel would of necessity play in a contingency. Finally, in the mid-1970s, this failure to be identified with the warfighting capacity of the Air Force resulted in an introspective analysis of what our mission really was (and is), and a thorough revamping of our attitude and approach to readiness was begun. Had we not done so, there would probably be no blue suit Engineering and Services forces today.

Today, commanders understand and appreciate the role we play in overall Air Force readiness. It is our responsibility - especially officers, senior NCOs, and civilian supervisors - to make sure our own people understand and appreciate that role. Our young airmen must often feel like they live in two different worlds. One day they are responding to service calls, working in the dining hall or billeting office, acting as a quality assurance evaluator on a roofing contract, etc...going about the seemingly routine, day-to-day functions of the peacetime Air Force, not that much different from work they might be doing in the civilian sector. Then they are told to gather their mobility gear, meet at the squadron, and go live in a tent for a few days or weeks. It's a leadership challenge to make sure a relationship exists, and is understood, between that peacetime job and the deployment mission. If that challenge is not successfully met morale will suffer and, most importantly, so will unit effectiveness. Among the ties that bind these two seemingly different worlds are training and general skill enhancement.

My observation is that we are succeeding. As I travel around the Air Force, I see Engineering and Services people getting the job done while our wartime readiness is at its highest level ever. Equally important, our people are proud of their mission and how they do it. Our task is to sustain our momentum, make improvements where we must, and ensure that we all know the importance of our jobs. Then the two different worlds won't seem so different after all.



CLIFTON D. WRIGHT, JR.
Major General, USAF
Director, Engineering and Services

The A-10 beddown and Project Constant Watch construction in the Republic of Korea are covered in this issue.

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FEATURES

4 • Project Constant Watch: A Korean Affair

8 • Constant Watch II — Far from over
• "Isn't there a better way?"

10 • A-10 Beddown — Sweet Dreams

12 • Let's be visible — Listen to your hotel talk

14 • Beirut in retrospect

16 • Grief

24 • Rodeo!

30 • Don't break the rules

36 • The good ole days

DEPARTMENTS

17 • ESQ world
29 • tecnotes
34 • Current Emphasis

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- Promote effective training, education, and retention.
- Communicate vital concepts, policies and practices which affect the wartime readiness of the United States Air Force.
- Promote professionalism, and devotion to duty.
- Stimulate planning for the wartime survival of our personnel, weapons systems and facilities.
- Develop Air Force stewardship of the well-being, quality of life and facilities support to Air Force personnel and their families throughout the world.
- Promote awareness of the efficient, effective and essential facilities needs of the Air Force.
- Transfer knowledge of Air Force Engineering and Services' technical and scientific achievements.
- Promulgate teamwork among the Air Force Engineering and Services' total force.
- Achieve a professional dialogue to enhance the thought, development and contributions of the Engineering and Services team worldwide.

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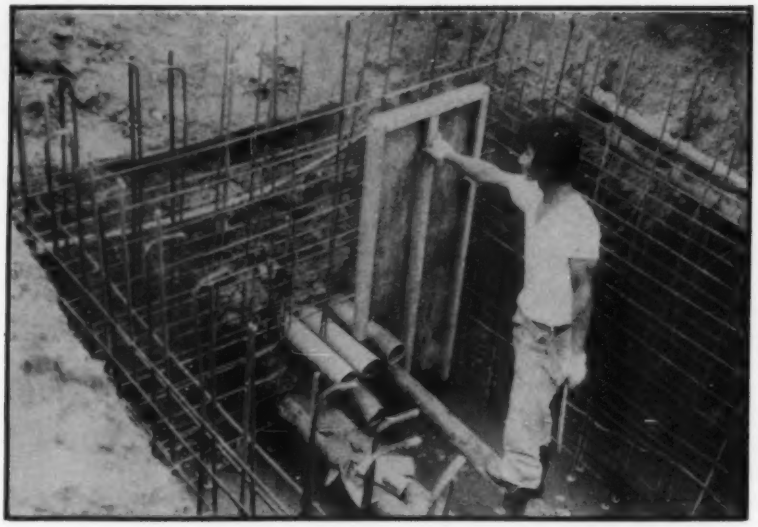
Project Constant Watch:

A Korean Affair



A Korean worker installing a concrete form.

by Col. Bruce W. Johnson and Capt. Joel C. Bradshaw III

Constant Watch is an ongoing program in the Republic of Korea to improve its air defense capabilities. It is a $300-million-plus joint venture between the USAF and ROKAF which began in early 1978, when senior South Korean and U.S. officials agreed that there was a need for upgraded air defenses in Korea.

The first phase of Constant Watch was the construction and equipping of the Hardened Tactical Air Control Center (HTACC) at Osan AB. The USAF Program Management Office (PMO), assigned to HQ PACAF/DO&I, established offices in Korea and at Hickam AFB, Hawaii.

ROKAF constructed the 80,000-square foot facility with USAF providing communications, computers, and other electronic equipment. In addition, USAF constructed and equipped two small radio facilities and antenna farms at Osan AB.

Planning and Design

HTACC was designed by Kuzosa, a Korean architectural and engineering firm, in accordance with design criteria provided jointly by USAF and ROKAF. A USAF facility design criteria booklet incorporated the majority of normal support construction requirements from AFM 88-15, as well as the unique requirements dictated by communications, shielded computer rooms, secure vaults, secure ground systems, and filtered power.

The design drawings and specifications were reviewed by Constant Watch (PMO), HQ PACAF/DE, and HQ PCA, as well as the ROKAF. The key to the design review process was the participation of the ROKAF project engineer, representatives of the U.S., using agencies, and PMO personnel—all authorized to make decisions on the project. Many agreements resulted from those reviews, saving months of delay which would have been required for high level staff review of the final design. Subjects such as secure vault ground systems, hardened manhole design, battle cab consoles, and cable runs were routine areas of concern and required the concerted effort of everyone involved.

The USAF and ROKAF engineers spent many hours with the A/E firm, explaining HTACC-peculiar requirements and unfamiliar criteria. In the end, the perseverance and teamwork of all involved produced an acceptable product—nearly 98 percent of the design was received in early 1979.

Based on the formal U.S.-R.O.K. agreement, the ROKAF was responsible for only the construction of the HTACC and hardened cable accesses. The U.S. was to provide communications & engineering (C&E) scheme support for construction outside the main facility. A P-341 Exigent Minor Construction contract was developed by the PMO and the 51st CES. The civil engineering squadron at Yokota AB, Japan, designed the two radio facilities, with assistance from PMO engineers for weapons effects on the structures.

Project Management

The Program Management Office at Osan AB was USAF's focal point for managing the project. Program reviews were conducted by the PMO with all users invited to attend. The first two reviews were held in Hawaii, and the ROKAF project engineer, Col. Kung Yon Cho, was invited to attend the second program review. His attendance proved to be a cornerstone upon which much mutual trust and openness were built.

Initial program reviews dealt primarily with design and supporting construction requirements. Later reviews, held onsite in Korea, dealt with problems of equipment installation. Nearing 50 percent construction completion, a weekly communications installation meeting was initiated, which included the ROKAF Program Manager and USAF Civil Engineering, as well as communications personnel.

Bothersome details such as the location of USAF cable trays, and the

ABOVE: Korean workers cart concrete reinforcing rods.

LEFT: A view of the semi-completed HTACC.

need to mate these with conduits and holes into secure vault areas, required close coordination with ROKAF, as well as constant attendance at the job site by PMO civil engineers. These rigid specifications resulted in many hours of close work with ROKAF and the construction contractor, in addition to many supplemental sketches and criteria.

Additional user-dictated requirements, such as manholes and cable banks, battle cab and operational area consoles, and secure filtered power necessitated significant coordination with ROKAF.

One of the most difficult requirements was the need for a secure low-resistance electronic equipment ground, but the area of the HTACC was very rocky and not suitable for a ground field. A C&E engineer from Hickam suggested a ground well, but ROKAF had no readily available well-drilling capability. With a little negotiating, the PMO civil engineer contracted with the U.S. Army Corps of Engineers in Seoul to drill the well and install a ground well. The ROKAF then installed the secure bunker around the wellhead and made the necessary tie-in to the HTACC.

USAF also provided many peculiar items of installed equipment for the ROKAF such as power filters, cypher locks, a KMU 450F decontamination cell, four chemical-biological filter units, and many smaller hardware-type items. In many cases, the provision of such equipment was a trade-off to obtain additional support construction not envisioned in the original agreement between U.S. and R.O.K. civil engineers.

Our PMO program controllers organized a PERT network and established configuration control procedures to keep the program on schedule and within scope. Change orders, discrepancies, and C&E scheme requirements were transmitted to ROKAF, using a numbered letter system similar to that used by a Corps resident office. U.S.-only requirements in support of the HTACC and C&E schemes were given to the 51st CES on the Air Force Form 332, Work Request, with an added Constant Watch indicator. These procedures established an audit trail for Constant Watch civil engineering and program control divisions to track supporting construction as it progressed toward required need dates. One of the most troublesome areas was late and constantly changing C&E scheme designs. Orderly work scheduling was maintained by our experienced communications officers in the PMO.

Communications Equipment Installation

With 80 percent of the construction complete, the ROKAF project engineer expedited some U.S.-requested areas so long lead-time C&E installations could commence early. A C&E engineers/installers office setup in the HTACC was a big help for keeping communications installation on track. However, early occupancy caused several problems such as high inside humidity, job site security and necessary finishing details.

Additional support work inside the HTACC facility, which was either outside the scope of the U.S.-R.O.K. agreement or that required only U.S. personnel, was performed by two groups of U.S. civil engineers of the PMO civil engineering staff. In one case, a prefabricated room was erected and connected to bunker supporting systems by a team from the 554th CESHR (RED HORSE) at Osan. This was the first of many valuable assists which the 554th gave to the Constant Watch program. The other civil engineering support was provided by the 51st CES from PACAF-wide personnel assets in various AFSCs who were assigned TDY to Osan for 6 months. These people installed items for communications support and assisted C&E installers as needed.

Outside Support Construction

The P-341 supporting construction got under way well into the main

construction of the HTACC. The U.S. Army Korean Contracting Agency (KCA) acquired a Korean contractor to build the two radio facilities. All the major mechanical and electrical components except the sheet metal ductwork were USAF-furnished. A detailed material schedule, provided by the Yokota CES, was processed by KCA to the PACAF procurement center in Hawaii for purchase and shipment of materials to Osan via Millitary Airlift Command. Item-by-item tracking by Constant Watch OLAA people at Hickam enabled timely delivery of the USAF materials.

While the Korean contractor was mobilizing, RED HORSE began construction of an access road to the site and drainage of rice paddies where the building and antennas were to be located. The 51st CES provided the power and water for the Korean contractor and monitored the construction contract.

Management Relationships

The structure of the two management offices is shown in Figure 1. While no formal direct-line relationship existed, U.S. and ROKAF engineers lived side-by-side on the job site throughout the project. Many people had areas of interest in the facility. Figure 2 indicates some of the many organizations that played an integral day-to-day part in providing and receiving information from the PMO as the project progressed.

From the outset, the two Civil Engineering staffs worked closely together to complete the facility on time and within the budget. This required almost constant contact between one or more of the personnel from both the U.S. and R.O.K. sides through numerous meetings with the A/E and contractor, both on- and off-site briefings to U.S. and Korean officials, and social functions with family members of both offices. A considerable number of problems were solved through the close personal relationship which developed.

Many evenings after duty were spent in the construction site office, discussing the day's problems and possible solutions. Inclusion of base civil engineer, RED HORSE and communications personnel in these informal get-togethers resulted in better working relationships among the various groups and with the ROKAF. Colonel Cho was regularly invited to PMO get togethers. This

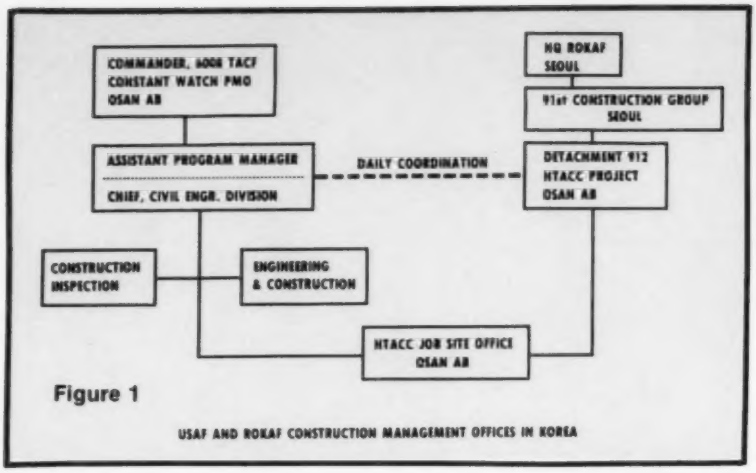


Figure 1

USAF AND ROKAF CONSTRUCTION MANAGEMENT OFFICES IN KOREA

was also a time when PMO Program Control, Communications and Intelligence Division folks could explain their problems and peculiar needs for ROKAF support to Colonel Cho in an informal setting. This informal means of closely joining the two construction staffs had great meaning in Korea, engendering mutual respect and friendship, and resolving construction problems between the PMO and ROKAF offices.

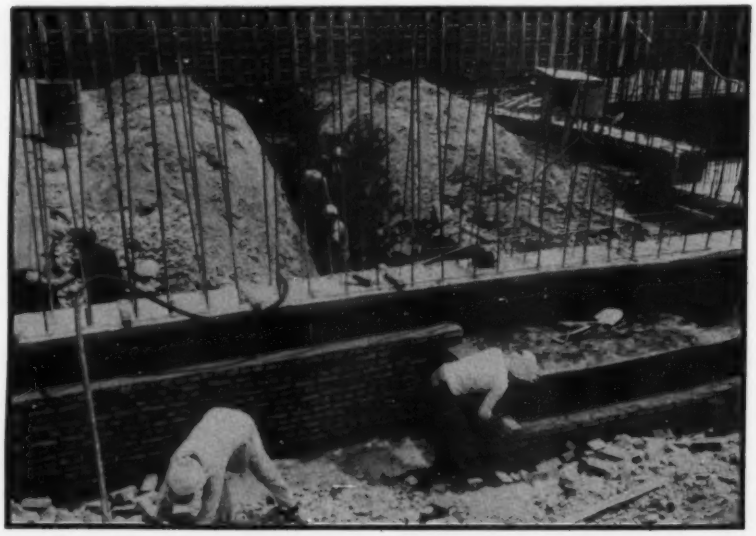
Recognition Leads to Success

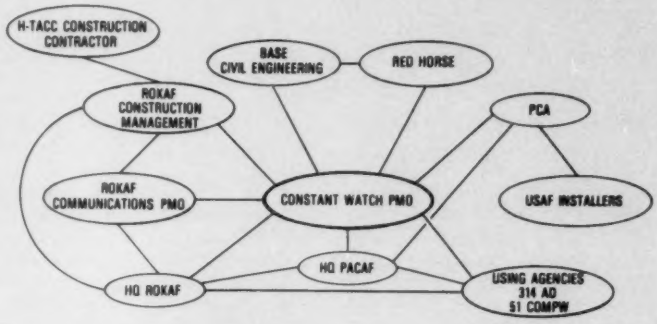
It was necessary for our people to recognize the major differences in construction methods in Korea, a nation with an abundant labor resource drawn from a population of about 70 million in an area the size of Indiana. Many jobs done manually in Korean would be done with equipment in the United States.

Skilled labor is sometimes difficult to find, particularly with the success of Korean construction firms in the international major construction market, the end result of which is the temporary export of most skilled workers.

While firms in the U.S. may complain of too many codes and regulations, these and standards for materials and testing are not as abundant in Korea. As a result, the

Various laborers work to complete another stage of HTACC.





BASIC RELATIONSHIPS BETWEEN CONSTANT WATCH PMO AND OTHER ORGANIZATIONS

Figure 2

three Constant Watch PMO civil engineers provided continuing quality control and inspections. Colonel Cho's decision to implement U.S. construction inspection and testing standards was significant.

Much of the need for standards became evident shortly after excavation began in September of 1978. We encountered bedrock and had to blast using single sticks of dynamite, with debris confined by using rice straw mats. We began making massive pours after the completion of a concrete batch plant at the construction site in March of 1979. Most of the vertical construction was done from April to December of 1979. Concrete was placed with chutes, buckets, carts and even pump trucks on several occasions. To assure structural integrity, and to guarantee the ROK the full value for their investment, we urged the adherence to mix and placement standards, particularly considering the great heights from which some of the concrete was placed, permitting aggregate to separate from the mix.

Installing communications equipment many feet below the ground in an environment of still-curing concrete was a challenge, solved with ingenuity. (We put mobile air-handling equipment into the affected areas until our schedule called for operating the permanent air-conditioning.) This type of response required insight into possible solutions and a willingness to adapt, but little of the paperwork and procedural effort required in the CONUS. In those cases where U.S. on-the-job safety regulations were not consistent with local practices, productive and enlightening discussions sometimes resulted. In other cases, it was necessary to permit the contractors to get their work done.

Working in Korea had some unique benefits. The PMO did not have to worry about change orders, negotiations with contractors and notices to proceed. When there were challenges, the ROKAF, the contractor, base civil engineering, RED HORSE and the communications installers faced them together.

In the ensuing years and months, the project has reached completion. Some problems caused by the early electrical and electronic installations, accomplished in clouds of condensed vapor until the air handlers were installed. But the primary consoles and the battle cab have functioned well, along with the peripheral C&E support.

The project stands as a monument of cooperation and willingness to work together to get the job done. The sense of mutual trust and respect created by this project greatly enhanced the accomplishment of later projects, and made a significant contribution to the readiness of the forces in Korea. ★

Col. Bruce W. Johnson is director of Engineering and Construction, assigned to the deputy chief of staff, Engineering and Services, HQ Strategic Air Command. He was both commander and deputy commander responsible for the Constant Watch program in Korea. Prior to his Korean assignment, he was chief engineer on two key European projects, the combined static war headquarters for the Allied Forces Central Europe and Allied Air Forces Central Europe, and the Combat Operations Intelligence Center, Ramstein AB, Germany.

Capt. Joel C. Bradshaw is the resident regional engineer, AFRCE-Eastern Region, on the $115 million Wright-Patterson AFB Medical Center Construction Project in Ohio. He was previously assigned to the Constant Watch project and the A-10 beddown in Korea. A graduate of Virginia Polytechnic Institute with both the bachelor and master of sciences degrees in Civil Engineering, he earned his master of arts degree in Business Management at New Mexico Highlands University, and recently completed Air Command and Staff College. He is a registered professional engineer in New Mexico, and is a member of NSPE, ASCE and SAME.

Constant Watch II

Far from over

by Capt. Steven E. Hoar

Despite the completion of the HTACC construction effort and the passing of the building occupancy date (BOD) on Dec. 30, 1980, the mission of the Constant Watch PMO was far from over.

Additional communications, data processing, and command and control systems, as well as a state-of-the-art closed circuit television system were still to be installed in the HTACC between January 1981 and the spring of 1983 (the end of the Constant Watch Phase I).

Each of the additional systems required a significant allied support effort and it became the job of the PMO's civil engineers to define engineering requirements and to obtain the needed support. The ROKAF continued to provide support, working closely with the PMO who often provided materials.

The 51st Civil Engineering Squadron continued to support the most demanding modifications and the U.S. Army Corps of Engineers, Far East District-Seoul, provided design and inspection for the constructed work. The U.S. Army Combat Engineers from nearby Pyong Tek, Camp Humphreys, got involved by providing conduit penetrations through heavily reinforced 1- to 2-feet thick concrete walls. Even the 554th CES/HR (RED HORSE) got involved, providing supporting antenna foundations and maintenance roads.

It became a real challenge for the U.S. engineers to perform modifications to U.S. specifications while working within a facility designed and constructed by the ROKAF to ROK standards. Although the ROKAF had anticipated some growth when sizing its utilities systems, emerging requirements soon maximized loading on the HTACC's power and air conditioning systems.

Beginning in January 1981, Constant Watch Phase II consisted of a major improvement to the tactical air control system in Korea. Constant Watch Phase II represented only a small portion of the ROKAF Project 222 effort, but involved extensive supporting construction work within the HTACC and at radar sites

"Isn't there a better way?"

by Maj. Allen A. Alchian

The base commander notifies the base civil engineer that he wants a particular building revetted and he wants it as soon as possible. Anyone who has erected steel bin revetment or watched it erected knows how labor intensive the project is: form and pour a concrete pad, assemble the steel revetment bins, fill and compact each bin by layer, then seal the top. The BCE must pull a sizable portion of his work force off other essential jobs to complete this immediate tasking.

New concept for proposed transportable concrete revetment

The 554th Civil Engineering Squadron (Heavy Repair), RED HORSE, at Osan AB, Korea, erects a considerable amount of revetment throughout the Korean peninsula each year; and, as we tackle each project, we've been asking ourselves, "Isn't there a better way?" In response to this question RED HORSE engineers have developed a modular reinforced concrete revetment. The module is 10 feet high and 6 feet wide and interlocks with other identical modules to form straight runs or 90-degree corners without leaving gaps in the revetment wall. Each module weighs approximately 6 tons and can interlock with adjacent modules utilizing "U"-shaped rebar for added strength and rigidity. The average material cost is approximately $360 per module.

Construction of the module begins with forming the rebar skeleton for the revetment, a task which requires about 16 man-hours. The rebar is placed inside a prefabricated, reusable steel form which is then filled with concrete. After a 3-day curing period the steel form is unbolted and removed from the finished revetment module, which is allowed to finish curing. No additional work is necessary, other than site preparation and anchoring. Herein lies the primary advantage of this modular revetment; it can be manufactured in advance of need, then it can be easily and quickly put into place wherever required. It is especially well-adapted for supporting portable or temporary facilities expected to relocate frequently. Typical examples of such an application would be revetting large generators, mobile equipment such as communications or data processing vans, trailers, or modulux facilities. With a bit of creative engineering the revetment itself could be configured into load-bearing walls to create an expedient facility.

The biggest question facing RED HORSE engineers involved in the revetment development was, "How effective would it be against a weapon?" Would the revetment shatter and send concrete fragments flying through the air, causing additional damage? Would it snap in half from a blast? Would it topple over and crush the area it was designed to protect? How substantial did the anchoring system have to be to hold the modules down so they would not tip over? We had many questions and no answers. The simple solution to the dilemma was to test the revetment.

RED HORSE found the ideal opportunity to test the revetment when the 51st Tactical Fighter Wing

throughout Korea.

Constant Watch Phase III got into high gear beginning in the summer of 1981 and this project involved the installation of mini-computers to automate operations and intelligence data dissemination throughout Command, Control, Communications and Intelligence centers (C3I centers) and Wing Operation centers (WOCs) in the Republic of Korea. Once again, the PMO civil engineers became involved in the management of a significant allied support effort.

Beginning in early 1982, the PMO took over responsibility for the development of design criteria for a new Korean Combat Operations Intelligence center (KCOIC).

This project soon evolved into a major design effort through the 314AD Civil Engineers at Osan AB and U.S. Army Corps of Engineers Far East District in Seoul. The firm of Knight-Korea was selected as the architect-engineer.

Today's KCOIC effort, rivals the Phase I HTACC effort in many ways, as it too involves the design, construction and equipage of a major hardened facility (83,600 SF). The KCOIC will be connected to the HTACC by a 300-foot tunnel which will also provide communications connectors between the two facilities.

The final KCOIC design documents were completed in June of 1984, but by that time, excavation had been completed and vertical construction had begun. KCOIC construction is scheduled to be completed in December of 1985 with equipment installation to proceed throughout 1986. The all important Initial Operating Capability (IOC) date is scheduled for December '86.

What's next for the Constant Watch PMO? Future increments of Phase III and follow-on efforts within the KCOIC are certain to keep the Constant Watch effort busy until the end of the decade. Whenever other C3I improvements are needed in Korea, you can be sure the Constant Watch PMO will be involved. ★

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Maj. Allen A. Alchian is chief, Operations Branch, 554th Civil Engineering Squadron (RED HORSE), Osan AB, Korea, where he also completed 1 year as chief of Engineering. He received his bachelor's degree in Mechanical Engineering from Oregon State and a master's in Facilities Management from the Air Force Institute of Technology, Wright-Patterson AFB, Ohio. He entered active duty and served 2 years as a weapons controller, including a tour in Southeast Asia. He has held civil engineering positions at Robins AFB, Ga., Carswell AFB, Texas and Yokota AB, Japan.

explosive ordnance disposal office at Osan agreed to let us erect some revetments at their explosive disposal range prior to a bomb disposal. They were scheduled to detonate a 500-pound bomb. So RED HORSE placed 3 modules on one of our flatbed trailers and hauled them three hours across the Korean countryside; this effort alone was an excellent validation of the portability of the modules.

At the test site, the modules were carefully placed in line and interlocked as they would be during a normal installation except no method of anchoring them to the ground was used. The bomb was placed on the ground, 50 feet in front of the revetment, with the bomb axis parallel with the revetment face so there would be maximum fragmentation from the bomb against the revetment.

The weapon was detonated and the results were very promising. A quick glance at the revetment showed that it certainly bore a significant amount of fragmentation, as evidenced by many spalls across its face, but all three revetments were still standing and there was no indication of a failure by any module. A failure is defined as a portion of the revetment module fracturing completely. Closer examination of the modules showed spalls as deep as 4 inches. Penetration by the fragments seemed to be limited by the depth of the rebar. The modules showed signs of shifting about 1/2 inch and a bit of settling, about 1/4 inch, which is theorized to have been the result of some rocking motion of the unanchored revetment.

The first test clearly showed that the modular concrete revetment concept was valid. It also vividly demonstrated that additional engineering is needed to improve the survivability of the modules. Consideration is being given to adding wire mesh to the steel within the revetment to help reduce the surface spalls and concrete fragmentation. Concrete additives such as superplasticizers or fiberglass fibers also are being examined as possible improvements. While no significant toppling effect was apparent in the first test, anchoring methods are also being researched to ensure the revetment does not move if subjected to a larger or closer blast.

RED HORSE is quickly preparing for another test in which we hope to incorporate some of these changes and compare the results to a standard steel bin B-1 revetment to be assembled at the blast site.

We're confident that the concrete revetment will prove to be a very satisfactory alternative to the time-tested steel bin revetment. We acknowledge that steel bin revetment will still be around for a long time to support aircraft parking aprons and large or permanent structures where space and time permit conventional revetment techniques. However, for those contingency situations where revetment is needed quickly or temporarily, we think that RED HORSE may have found a better way! ★

A-10 Beddown

Sweet Dreams

by Capts. Joel C. Bradshaw III and Richard D. Marchbanks

In the 1970s, the U.S. began reducing the number of ground forces in South Korea. To compensate for this, the Korean government initiated a 5-year modification plan, and the U.S. increased its tactical air presence in Korea. In 1975, Korea also initiated an ambitious and expensive 5-year force improvement plan (FIP) which improved the balance of power with North Korea, but the North had twice as many mobile assault weapons, including a force of 2,300 tanks. To counter this threat, the U.S. decided to send a squadron of A-10 Thunderbolt II aircraft to South Korea for close-air support. The A-10 weapon system includes a high-fire-rate 30mm seven-barrel gun and a variety of other weapons carried on 11 pylons. These make the A-10 ideal for the tank threat of the North in South Korea.

Planning

A memorandum of understanding between USAF and the Republic of Korea Air Force (ROKAF) for the A-10 beddown was signed in January, 1981. The ROKAF agreed to construct facilities on a "fast-track" schedule to support 26 A-10s and 1,100 USAF personnel which were to arrive in early 1982. Suwon AB, which was occupied by the ROKAF, was selected to be jointly used by ROKAF and USAF for the beddown. It had a runway which was adequate for the A-10s and it was located close enough to the DMZ and Seoul to provide an acceptable response time.

The initial design concept, which was outlined in a Combined Program Management Plan (CPMP), included construction and renovation of 60 facilities in four phases. Phase I included troop housing, administrative and logistics support, and base engineering facilities. Phase II included construction of aircraft maintenance and munitions storage facilities. Phase III was construction of the officer/NCO club, chapel and gymnasium. Phase IV was construction of hardened third generation aircraft shelters, quick-turn facilities and calibration pad.

Project Management

The USAF program management office (PMO) was established with three civil engineering officers and two NCOs in September, 1980, just prior to start of the earthwork at Suwon. The A-10 PMO was attached to the 51st Composite Wing at Osan AB and was responsible for ensuring an adequate design and acceptable construction, and for coordinating U.S. construction support and arrival of personnel and aircraft. The U.S. Army Corps of Engineers, Far East District (FED), located in Seoul, was design and construction agent for the Air Force.

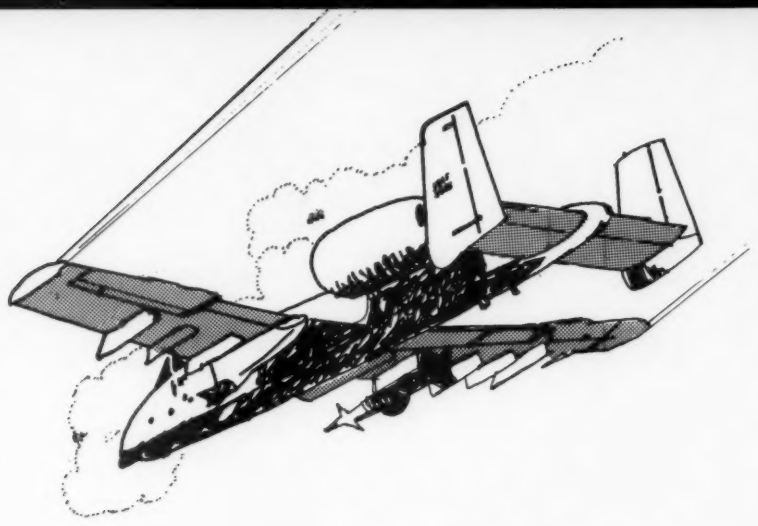
The ROKAF PMO, which was responsible for managing design and construction, was established with Col. Kung Yo Cho as commander. Colonel Cho, who had just finished construction of the Constant Watch Hardened Tactical Air Control Center, was instrumental in the success of the project due to relations he had developed with USAF personnel as well as his management abilities.

Management of design and construction was a joint effort of ROKAF, USAF and the Corps of Engineers. The ROKAF PMO (designated 911 Construction Detachment) was located at Suwon AB for construction management, but design coordination was at ROKAF headquarters in Seoul. The USAF A-10 PMO had its main office at Osan AB, with a branch office at FED in Seoul to coordinate and assist with design review, and a field office collocated with the Corps at Suwon AB to supervise construction surveillance.

Design

A Korean construction firm, Dae Lin Engineering Co. located in Seoul began design in 1980. Designs were based on USAF design criteria booklets for each of the facilities, which were developed by the Corps Pacific Ocean Division. These design criteria booklets, which became known as the "red books," were based on Air Force design manuals and the "A-10 Facilities Requirements Report" by Fairchild-Republic Co. In addition, FED provided the Korean A/E with copies of their guide

Capt. Richard D. Marchbanks is currently assigned to the AFIT Graduate Engineering Management School, Wright-Patterson AFB, Ohio. His previous assigments include Systems Facilities Branch, ASD/DES, Wright-Patterson AFB, Base Civil Engineer, Suwon AB, Korea and 314th AD/A-10 Program Management Office, Osan AB, Korea. He has a bachelor of science degree in Electrical Engineering from Georgia Institute of Technology and has attended Squadron Officer School in residence. He is a registered professional engineer in Mississippi and a member of the Society fo American Military Engineers. He was commissioned through the AFROTC program.



specifications for construction in Korea, and the A-10 EPMO provided copies of applicable USAF design manuals.

Due to an aggressive design schedule to support the "fast-track" construction, the normal 30-60-90 percent design review developed into a continuous effort. FED devoted a large portion of their engineering resources to reviewing A-10 design drawings. The A-10 PMO branch office located at FED, which included civil/structural, architectural, mechanical, and electrical engineers, provided technical assistance to ensure that all USAF functional and life safety requirements were met. The USAF design review also included coordination with user personnel who were arriving in-country at the time. Our architect was a Korean national, Mr. Ik Song To, who proved to be an invaluable asset. He interpreted many design drawings, ROKAF letters, and conversations with ROKAF personnel and the ROK architects and engineers.

Construction

Vertical construction began in late spring 1981, at which time FED and the A-10 PMO established field offices on the job site at Suwon AB. Colonel Cho accelerated the construction effort with a determination to have the base ready for arrival of the A-10s in April, 1982. Maintaining quality assurance and acceptable construction standards required a cooperative and diligent effort by all ROKAF, USAF and FED personnel involved. Construction at a rapid pace was spread across the base in four different directions and with two major ROK construction contractors.

By the end of the summer of 1981, Col. John Sowers moved from 314th Air Division's Civil Engineering Office to command the engineering portion of the A-10 PMO. It was redesignated as 314 AD/A-10 PMO and reported to 314 AD/commander. This provided a more equitable relationship with the ROKAF design and construction management. The USAF field office was increased in size, and Air Force civil engineering officers and NCOs were brought in on TDY to assist with construction surveillance and inspection.

USAF Construction Support

In addition to surveillance and inspection, the A-10 EPMO coordinated purchase and delivery of prefabricated building materials from the U.S through the U.S. Army Korean Contracting Agency (KCA). These were matched with retrograde building materials from Osan AB, and then the unassembled buildings were given to ROKAF for construction of several facilities. A-10 PMO personnel also went to Clark AB in the Philippines to identify residual materials which could be used in the construction at Suwon. This was to help ROKAF to meet their budget, which was threatened with a significant cost overrun. Furnishing these excess materials, such as insulation, piping, floor tile, and air conditioning equipment, was an alternative to prevent the ROKAF from deleting several facilities.

We also helped the ROKAF reduce their construction costs by re-evaluating and redesigning existing facilities which were being renovated. This required a thorough coordination with all the users, who would be occupying these facilities, through the A-10 PMO office at Osan. Renovation was changed to minimize demolition of existing walls and heating, ventilation and air conditioning systems. In some instances, several functions were swapped between buildings.

Three buildings at Suwon were built by RED HORSE (554th CESHR) from Osan AB. These were the base exchange, theatre, and interim morale, welfare and recreation facility, which were completed by summer, 1983. This added to the coordination effort by the A-10 EPMO, but it was a successful part of the project and another job well done by RED HORSE.

Colonel Cho was a firm believer in using the program evaluation and review technique (PERT) of network scheduling, which was a tremendous help to the USAF A-10 PMO. It enabled us to schedule delivery of building parts and materials, such as insulation and carpeting, only as needed since storage space was at a premium. The PERT network also helped us plan for the additional TDY personnel necessary for construction surveillance, and for early occupancy of some support facilities.

Beddown

The first A-10s arrived in Korea in April, 1982, with Phase I completed. USAF Personnel found a base with excellent officer and enlisted living quarters. The dining hall and combined officer/NCO club were adjacent to the housing area, and the post office, BX, theatre, MWR, and administrative buildings were nearby.

Construction of the third-generation aircraft shelters began in 1982 with the A-10s being temporarily parked in the dispersed locations. The quick-turn facility was essentially completed in 1983, and construction of the MWR facilities continues.

This was a successful project, and it happened because of a cooperative effort among ROKAF, ROK and U.S contractors, Army Corps of Engineers, and the many USAF offices involved. It was also successful because the individuals involved developed understandings of the other nation's customs and ways of doing business. ★

Let's be visible

Listen to your hotel talk

by Mike Wilson

Making a "good first impression" is very important in the billeting business, but the innkeeper's genuine concerns should stretch from check in to check out.

The successful host concentrates on "total impression" and listens attentively to what the hotel is saying to the guest. You might be surprised at some of the things your hotel is saying.

Let's assume you have cleared that first important hurdle by creating a favorable impression. You have a reception committee of nicely groomed employees, facilities that are clean and well maintained, and grounds that are neatly trimmed and free of litter. Now what?

You should be constantly aware that your hotel continues making impressions on your customers—talks to them in a language that is indelibly written in the heart and mind. Is the message one of excellence in service? Of comfort and convenience? Of warmth and hospitality?

Listen to what your hotel is saying to your guests. Hear the whole story by listening to the messages sent out by all elements of your operation.

Start with your parking lot. Yes, your guests get a message here. Have you provided reserved, short-term parking immediately close to the main entrance for guests that are registering or checking out? Is the lot clean and free of litter? Does the adjoining landscaping provide thoughtfully arranged flowers and shrubs? Is the grass green? Do you have an effective grounds maintenance program? Do your grounds say "we're glad you're here?"

Now go to your building entrance. Is it well lit at night? Are there any hazards that you've overlooked? Do your doors open with a minimum of muscle? Are they wide enough to permit a person with bags in each hand to walk in without "squeezing" in? Do you hear the message "come on in—we're glad you're here?"

Enter your lobby. What's the message here? Is it large enough?

Is there sufficient seating? What's the visual condition of your floor surface? Is it clean and well-maintained or do you see a path marked with dirty shoes? Do you see a well-planned, tastefully decorated reception lounge with good artwork, plants, and comfortable seating on a par with any medium-priced civilian hotel? Or do you see "early conglomeration" — decor that includes left over furniture and dime store picture reprints on the walls? What's the message here?

Now look at your reception area. Is it neat, functional and attractive? Are the reception items neatly arranged? Is there ink in all the pens? Are the walls free of warning signs and other negative type notices? How about your reception personnel? Are they dressed neatly and professionally (civilians in business attire that includes vests and ties and military personnel wearing uniforms with ties)? Do they chew gum, smoke or eat in plain view of the guests? Are their fingernails clean? Do they refer to all persons as "ma'am" or "sir" regardless of rank? Do efficiency, courtesy, amiability and professionalism ring out loud and clear to all customers?

What kind of message do your corridors and stairways give? Do they clearly provide directions to your laundry rooms, ice machines, vending areas and guest room locations? Or is there silence? Are they well-lighted and tastefully decorated with wall art? Are the room numbers in logical sequence and easily read?

Now walk into one of your guest rooms. Is the switch located to the right at about shoulder height or is it on the opposite wall at knee height? How about the room's "smell?" Is it fresh with just a hint of a neutral (not too sweet) air freshener? Surely the room doesn't have dirty laundry odors, cigar, and other odors that send a clear, objectionable message to your guest. Since sleep furnishings give a distinctively clear, physical message to your guest, check them closely. How about the bed pillows? Are they plump, odor free and reasonably firm? Now check the mattresses. Are they firm or lumpy? Do they have soft spots? Is the bed generally rigid or does it "shake, rattle and roll?" Does the television work? Are current television, radio and cable listings provided?

Take a look at your directory of services (room brochure). Is it a "manual for court martial" or is it a friendly, brief, concisely formatted, innovative presentation of your hotel's services along with a brief description of other base service activities (clubs, BX, dining hours, etc.)?

Check your bathroom. Is it clean, fresh, and inviting or does it smell strongly of pine oil? Is your mirror large, free of chips and paint splatters, and well lit? Be sure that the old medicine cabinet with missing glass shelves and rusted interiors has been replaced. Are there shower mats on the shower floor? Are there safety strips for bathtub bottoms? Does the bathtub drain stopper work? How about the shower curtain. Is it color-coordinated, heavy enough to keep water inside, and printed with your logo or hotel name? Is the toothbrush holder clean? Is mouthwash furnished and the facial tissue dispenser at least half full?

Turn on the exhaust unit. Does it work quietly? How about your drying lamp? Be sure that your 1 1/4 ounce brand name facial soap and 1 1/2 ounce body soap are positioned appropriately—body soap in the shower or bathtub holder and facial soap near the sink in its soap dish with the name facing the guest. Does the room provide big, thirsty, fluffy coordinated sets of 24- x 56-inch bath towels, hand towels, bath mats, and 13- x 13-inch wash cloths? Check for frayed ends. Your bathrooms are one of the biggest tattletales you have. Listen to this room very well.

Now go back to your office and reflect on what your hotel has told you. We didn't visit your laundry rooms or baggage rooms. They have a message too and you should visit them daily.

Guest amenities you provide can only improve an already good operation. They're inexpensive to provide but are invaluable in consideration of the positive statement they make about you and your hotel. Consider coffee, tea, mouthwash, stationery, pencils, note pads, extra blankets, shower caps, shoe cloths, paper laundry bags, etc.

Striving to create a favorable first impression is only the beginning of professional innkeeping. We should strive to create and maintain a total environment of quality, comfort and service. For the sake of brevity I mentioned only some of the more-often overlooked and sadly underrated elements of our service. Take the time to hear all that your hotel has to say. It will never lie to you or your guests. Make it say the words our guests love to hear—"we're glad you're here." ★

A.R. (Mike) Wilson is the TAC housing referral specialist. Prior to this assignment he served as innkeeper at Langley AFB, Va., where he won the 1983 Air Force Innkeeper's award and the Senior Civilian Services Manager of the Year award. He previously served as innkeeper at Offutt AFB, Neb. A retired USAF master sergeant, he has more than 10 years of both military and civilian lodging experience. He is a member of the Professional Housing Manager's Association and the Services Society.

Beirut in retro-spect

Search continues at the battalion headquarters building at Beirut International Airport, October, 1983.

EDITOR'S NOTE: The U.S. Air Force was assigned the responsibility for processing and identifying the casualties from an earlier disaster, April 25, 1980, in which two commercial airliners collided while operating on an airport facility in the Canary islands. Before that, the Jonestown, Guyana, disaster unfolded in November of 1978. The Air Force was assigned the difficult tasks of identification and mortuary processing. In both cases, the large mortuary processing facility at Dover AFB, Del., was chosen.

The Beirut disaster is unique in recent times because Rhein-Main AB was chosen for the identification site, and the Army mortuary facility at Frankfurt was chosen for processing casualties. This article points to one of Engineering and Services' least known but most important missions.

by Capt. Kathryn Wagner (AFRES)

October 23, 1983, will remain a dark day in military history. That early Sunday morning, a single terrorist attacked the U.S. peacekeeper force in Beirut, Lebanon. His suicide mission in an explosive-laden truck killed 239 military people. The attack resulted in a mass casualty identification operation bigger than any experienced in recent years by the U.S. military.

Brig. Gen. Joseph A. Ahearn, deputy chief of staff, Engineering and Services, Headquarters U.S. Air Forces in Europe, was appointed by Headquarters European Command as the executive agent for managing the Beirut mortuary operation. Engineering and Services resources throughout the European theater were required for the formidable task of recovering remains from Beirut. The mission included identification, mortuary processing, and the return of positively identified remains to the United States. In the final analysis, more than 1,500 people, representing all military services and the Federal Bureau of Investigation, were required for the operation.

Many factors made this operation particularly difficult. The violent explosion caused extensive complications. Among these was the prolonged recovery period. Bodies were still being recovered 10 days after the explosion. The primary set of problems for the mortuary affairs people involved coping with the violence suffered by the victims—human evidence of an inhuman act. Medical and dental records were located in the demolished building and were not readily accessible. Lastly, there were no permanent mortuary facilities in the European theater having adequate space and capacity to handle a disaster of this magnitude. Manpower and materials had to be quickly marshalled, and adequate facilities had to be obtained. A review of available resources indicated that the U.S. Army mortuary located near Frankfurt, Germany, would be the best facility for embalming operations. Even though it is the largest U.S. mortuary in Europe, the magnitude of the Beirut operation was more than three times the normal capacity of the Frankfurt facility. It was necessary to divide the operation among two sites. Identification

American Embassy seal damaged by April 18, 1983 bombing.

processing was located at a temporary site erected at nearby Rhein-Main Air Base, also near Frankfurt; and all other mortuary processing took place at the mortuary.

The identification site was a large commercial tent which our engineers built within 24 hours to meet the key requirements of physical security, large working space, and storage capacity. It became necessary to employ refrigerated vans for storage. A huge network was quickly established by the Rhein-Main personnel:

- Communications
- Physical requirements (lights, latrines, heat, power and water)
- Support requirements (including food service and transportation) and
- Security.

Identification processing at this site included dental and medical exams, photographs, charting, fingerprinting, x-rays, and records comparison, including analysis of antemortem and postmortem records.

Command and control of the entire operation were essential as continuous national pressure mounted to return the remains of victims to their homeland. The flurry of all activities was channeled through a mortuary control center established at Rhein-Main AB, headed by Col. John. J. Maloney, director of Housing and Services at Headquarters USAFE. From this nerve center, all implementation actions were coordinated. Mortuary, identification, medical and dental officials from Air Force, Army and Navy resources, as well as FBI latent fingerprint experts, were sought out and brought in. Air Force services officers and superintendents from England and Turkey were called in to work in the control center.

Return airlift was scheduled and closely coordinated with the Military Airlift Command to ensure that the Marine Corps ceremonial requirements at Dover AFB, Del., were met.

The end results were gratifying for all who became involved. A 100 percent identification rate was achieved. At the identification site, 99 percent of the remains were positively identified. The remaining 1 percent were later positively identified through forensic anthropologic study at the mortuary service center in Hawaii. We also exceeded initial time estimates for processing—95 percent of all remains were positively identified and returned to the U.S. by the 11th day of operation.

Important lessons learned from this operation. We quickly realized that mass casualty plans for wartime or disaster situations were not adequate for this large-scale peacetime operation. Alternate facilities and locations had to be found quickly. Manpower augmentation was a particular challenge. Knowing where to find the key forensic pathologist, dental experts and morticians was of vital importance.

Additionally, the dental officers' pre-established forensic dental kits were ready at the outset, aiding their quick response. The large pool of both skilled and unskilled laborers was critical. Our security, civil engineer, services, and communications support was superb.

The end result achieved by those who worked so hard was a tremendous sense of achievement. Not only were many unique obstacles overcome but, more importantly, the positive identification of each casualty and the subsequent return to the United States meant that we contributed in a small, but important, way to easing the grief and anguish suffered by the next of kin. The readiness and determination of each individual to achieve our goals, coupled with grand-scale interservice cooperation, produced worthy results. ★

Capt. Kathryn (Katie) M. Wagner is a Services Reservist (MA), assigned to HQ AFESC and performing attached duty at HQ USAFE/DEH. She has worked in Services operations, food service, billeting, facility programming, and furnishings management in tours at Malmstrom AFB, Mont., HQ SAC and HQ USAFE. She has completed SOS, is enrolled in ACSC; has a BA degree in History from Coe College, and a master's degree in Psychology and Counseling from Pepperdine University. She is married to Capt. Darrell Wagner from Sembach AB, Germany. She participated in the Beirut mass casualty identification effort in Frankfurt, Germany, October through November 1983, and received a Joint Service Commendation Medal for her efforts.

Grief...

by Capt. Katie Wagner and Murray E. Horton, Jr.

Why an article on grieving?

Death is a subject long considered taboo in our society, a subject that is difficult for many to think about. No topic is probably more ignored than death is, and oftentimes persons go even further by avoiding people who have suffered a personal loss and are grieving. But in the Air Force, you may find yourself placed in the role of assisting a grieving person. This person may be in a very dependent, vulnerable state; totally reliant on you for help and guidance. Could you handle it?

Although never an easy task, helping a grieving person is an important job and you can prepare yourself. Whether as a Services person performing mortuary officer's duties or as a commander, first sergeant or friend of a grieving individual, knowing the stages of grief and how you personally feel about this sensitive subject will help you do an effective job when assisting a grieving person.

Stages of Grief

Grief is one of the strongest human emotions. It is a form of anxiety reaction basically derived from fear. A grieving person, in working out painful and confusing feelings, goes through different stages of grief. It is important to be sensitve to each of the different stages, and to allow people to ventilate and work through their emotions.

The stages of grief are denial, anger, bargaining, depression, acceptance, and hope. They do not necessarily happen in order, nor do they last for a set period of time. An unexpected death, such as the death of a child, is generally the most difficult death to accept. Shock and confusion, indicative of the denial stage, last longer. The stage of anger finds grieving people pent up with volatile emotions. Rage replaces reason and one in this stage is not emotionally able to discuss the necessary "business transactions" of signing mortuary documents; at these times they may be angry toward the Air Force as a whole.

How to Help

Be sensitive, reach out, and help as only another human being can. It is especially important to be sensitive because in our highly mobile military society, PCS assignments (particularly overseas) mean that military people are more likely to be physically removed from their loved ones and family who would normally form the close circle of support that is needed when a loss is experienced. A grief-stricken individual is in a position of almost complete dependency on others; he or she may have no way of coping with the situation, being unable to make adjustments to the suddenly changed conditions.

When asked if a professional should show emotions after a death, Elisabeth Kubler-Ross, an expert on the subject death and dying, answered, "I wonder why we should not." Although we normally go to a grieving military family's residence to brief them, wearing service-dress uniform, we must first be *people*. Never be immune to the emotions and feelings of grief another person has. *Listen* to the grieving spouse or relative, be empathic to their needs, and offer help and assistance.

For mortuary officers or designates, knowing the entitlements and limitations set forth in AFR 143-1 is essential in informing the next-of-kin what they can expect to receive at government expense. Disposition instructions must be obtained as quickly as possible, but never at the expense of "pushing" a family into a decision before they have recovered from the initial shock of their loss. Taking another person with you may make your visit easier. Try to stay in a positive mode (don't mention unfavorable facts about the deceased). Be calm in manner and voice. Your mental attitude will have a powerful influence on the bereaved. And last, don't be afraid to convey warmth and sensitivity.

Knowing Yourself

The experience of grief is something we all face at one time or another, and each of us handles it in a different way. The tragedy of massive death, such as the Beirut mass casualty operation (Oct. 19, 1983) which many USAFE Engineering and Services people worked, led to the discovery that each of us deal with feelings in our own way. We steeled ourselves for the mission, but later worked out emotions in very helpful group counseling sessions with the base chaplain. Talking together helped us recognize our emotions were normal, and helped us re-establish a bit of humanity after handling a grossly inhumane act.

This brings up a final point: Trained professionals, such as chaplains and mental health personnel, deal frequently with the grieving and know how to assist people in moving on toward healing and life. Do not hesitate to ask for their assistance, whether for your own grief reactions, or when working with the bereaved.

Be a Person

Death is a fearful, frightening experience for all mankind. Our profession requires us to deal with those who grieve following the death of a loved one, and our humanity demands we do the best job possible. Recognizing the stages of grief and reacting as a caring human being helps us not only accomplish the Air Force mission, but helps a grieving family re-establish their lives. Rarely will we ever be assigned a more important duty. ★

Murray E. (Buddy) Horton, Jr., is the commmand mortuary affairs specialist assigned to HQ USAFE DEHS, Ramstein AB, Germany since 1983. He began his civil service career with the Air Force at Torrejon AB, Spain, as a mortician, was promoted to mortuary supervisor. Before his current assignment he was assigned to HQ AFMPC MPCCM, Randolph AFB, Texas. He attended St. Leo's College, St. Leo, Fla., and is a graduate of Cincinnati College of Mortuary Science, Cincinnati, Ohio. During his assignment to HQ USAFE he served as a member of the Beirut mass casualty identification operation October through Nov. 10, 1983.

NATIONAL ACADEMY OF SCIENCES COUNCIL VISITS TYNDALL AFB

What have rapid runway repair and an urban pothole got in common?

Air Force technology used to fix bomb holes and spalls in wartime runways may be useful in solving a major urban crisis of today—the killer pothole.

One of the councils of the National Academy of Sciences visited Headquarters Air Force Engineering and Services Center, Tyndall AFB, Fla., on Nov. 19, to get an overview of Air Force technology used in base operations and maintenance. While visiting, they were given a demonstration of RRR technology and a tour of the Air Force Engineering and Services Laboratory.

The Academy's Public Facilities Council received special presentations from HQ AFESC covering AFESC's worldwide responsibilities for Air Force facilities development, construction, operations and maintenance, and environmental research.

Maj. Gen. Clifton D. Wright Jr., who serves as director, Engineering and Services, HQ USAF, Washington, and Col. Jerry A. Smith, commander, HQ AFESC, Tyndall AFB, hosted the visit.

The council members include state and local government officials responsible for facilities management. Their purpose is to identify problems of joint concern and provide a mechanism for all government officials to share technological information, research results, and solutions to common problems.

The council identifies solutions which have been developed and makes them available to state and local governments. Another alternative offered by the council is to provide direct access to the nation's scientific and technical talent through the National Research Council.

Two mainstreams of resource within Air Force Engineering and Services have potential common ground: research and development and operations and maintenance.

The Air Force employs much of the same operations and maintenance technology as both the private sector and the state and local government facilities managers. The Center's vast scope, including all Air Force facilities in innovative new concepts and ideas to help the Air Force do the base operations and maintenance job better.

Much R&D effort supports the Air Force wartime mission. Making it possible for the airbase to function even after attack is a major effort. Potential spinoffs are useful in the nonmilitary arena. While RRR research and methodology may not seem to relate to potholes, Air Force research has turned up promising new techniques and materials which are sufficient to make a bomb-damaged runway operational within a few hours, even for such high performance aircraft as the F-15, and such heavyweights as the C-5 and C-141.

Much of Air Force efforts can be directly related to the concerns of the council's membership. These include:

- Air Force programming to replace older facilities in an orderly way;
- A major campaign to create design excellence including lower life cycle costs while assuring a quality place to work and live;
- Improving the utilities infrastructure and O&M procedures;
- Numerous energy innovations, and
- The use of novel new techniques and materials.

Brig. Gen. (Maj. Gen. selectee) Charles A. Horner, commander, USAF Air Defense Weapons Center, Tyndall AFB, joined the E&S leaders and council members at a special luncheon at the Officers Open Mess. Others at the luncheon included:

PFC members—Thomas Abraham, director, Department of Facilities and Services, Montgomery County, Md.; Ray DeBruhl, director, North Carolina Division of State Construction, Raleigh; John Hanson, California deputy state architect, Sacramento; Richard Correia, Boston, Mass., Division of Capital Planning and Operations; Allen Platt, Virginia superintendent of buildings and grounds, Department of General Services, Richmond; Russell Doeg, Connecticut acting director of the Design and Construction Division, Hartford; John P. Eberhard, executive director, Building Research Board, Washington; Gretchen G. Bank, staff consultant to the council, Washington; Alfred Grimaldi, chief civil engineer for the Port Authority of New York.

Air Force respresentatives — (HQ USAF) — Col. Jarrell S. Mitchell, William S. Brown Sr., and G. Hamilton Myers, Engineering Division; (HQ AFESC) — Bernard C. Meredith, Center

technical director; Col. Robert E. Boyer, director of the Engineering and Services Laboratory; James R. (Bob) Van Orman, his deputy; Sam Carter, deputy director, AFESC Operations and Maintenance; Lt. Col. Robert F. Olfenbuttel, chief of the laboratory's Environics Division; Lt. Col. Everett H. Mabry, chief of the Engineering Research Division; Maj. Thomas M. Riggs, executive officer to Colonel Smith; and Lt. Glenn D. Seitchek, project officer for the council's visit.

GEN. WRIGHT HEADS NSPE ADVISORY GROUP

Maj. Gen. Clifton D. Wright Jr., Air Force Director of Engineering and Services, has accepted the chairmanship of NSPE's Government Advisory Group for 1984-85.

The concept for the Government Advisory Group was instituted more than 3 years ago to serve as a resource for NSPE. Members are asked to serve by the chairman and are appointed by the NSPE president. The group is composed of high-management executives in major government organizations whose function depends in substantial measure on the use of engineers and engineering.

The group meets twice a year in Washington, D.C. Some of the discussion items have included: engineering education; legislative matters; registration; employment practices; policies on procurement of architectural/engineering services by goverment agencies; and, recruitment and retention of engineers by the government. Government pay and classification procedures for engineers have also been a topic of discussion.

The group is one of three such advisory forums sponsored by NSPE. The other groups are composed of industry and education representatives.

Group meetings provide an informal, off-the-record forum for exchange of information, ideas and viewpoints on policies, regulations or upcoming legislation affecting engineering departments within government agencies and engineering manpower in these agencies.

The new chairman has been in Air Force civil engineering for his entire career and has served at all levels of command. He was a pioneer in integrating the worldwide services function into the Engineering and Services organization of today. He is a registered professional engineer in the state of New Mexico.

AFIT RENAMES DEPARTMENT

WRIGHT—PATTERSON AFB, OH (AFIT) — The Dean of the School of Engineering, J.S. Przemieniecki, recently announced that the Department of Electrical Engineering at AFIT will now be called the Department of Electrical and Computer Engineering.

According to the manpower detachment office, the change was made to reflect significant emphasis now being placed on the computer engineering courses, to follow national academic trends renaming electrical engineering departments, and to enhance the importance of computer engineering as a separate discipline.

FOREIGN OFFICERS TRAINED

The 832nd Civil Engineering Squadron at Luke AFB, Ariz., was tasked last summer to provide familiarization training for five foreign civil engineering officers, including up-to-date information on civil engineering management and operations of work centers.

The training was conducted in a professional manner by many members of the 832CES who contributed their time and efforts to assisting the foreign officers in obtaining needed training.

The foreign trainees included four Egyptian field grade officers and one field grade officer from the Republic of Korea. The Egyptian officers familiarized themselves with operations and maintenance, including the power production shop, exterior electrical shop and the HVAC systems. The Korean officer familiarized himself with overall civil engineering management and functions. The Egyptian officers' training period was short due to the limited scope of shop operations. The Korean officer's training period lasted 11 weeks. He visited each work section and received individual on-the-job training (OJT). This one-to-one OJT concept, in lieu of

classroom-type instruction, seemed to help him comprehend more easily. Both "teachers" and "student" benefited greatly from the exchange of ideas in each area.

Besides the technical familiarity training, the officers were escorted to various local community functions and areas of interest. This off-duty interaction created opportunities to share cultural values and to learn the importance of international relationships.

Training the foreign civil engineering officers was a worthwhile learning experience. The language barrier presented some problems which were overcome by sincere efforts on the part of all involved. This learning and teaching experience provided many 823CES members their first opportunity to interact with members of foreign allied services and could prove beneficial in our worldwide mobility commitment.

ESCCMP REPORT

PROMOTIONS (P) REASSIGNMENTS (R)
August — October 1984

Vernon J. Suits (Chanute) to GM-0801-13, Ch, Engr and Env Pln Br (Chanute) (P)
James R. Van Orman (Tyndall) to GM-0801-15, Dep. Director, Eng & Svcs Lab (Tyndall) (P)
Marvin L. Garcia (Nellis) to GM-0801-14, Ch, Utilities Division (Offutt) (P)
Charles E. Neal (Sheppard) to GM-0830-12, Ch, Systems Mgt. Sec. (Sheppard) (P)
Edward N. Greenler (Kirtland) to GS-1173-11, Housing Mgr. (Patrick) (R)
Charles Hatch (Peterson) to GM-0801-13, Deputy Base Civil Engr (Torrejon) (R)
Lowell D. Klepper (Moody) to GM-0801-13, Deputy Base Civil Eng (Moody) (R)
Gordon H. Kempton (McGuire) to GM-0801-12, Ch, Construction Mgt (McGuire) (P)
Harry R. Marien (Tyndall) to GM-0801-14, Ch, Air Base Surv Br (Tyndall) (R)
Geraldine E. Williams (Lakenheath) to GS-1173-11, Housing Mgr (RAF Greenham Common) (R)
Richard C. Moroet (Kadena) to GM-0801-13, Ch, Tech Design (Kadena) (P)
Robert Baldwin (Robins) to GS-0830-12/13, Mech Engr (AFRCE-ER) (R)
Ralph Pittman (McChord) to GS-0020-12, Sup Comm Planner (McChord) (P)
Miles Pelton (Dover) to GM-0801-13, Ch, Tech Design (Dover) (P)
Pauline B. Householder (Mt Home) to GS-1173-09, Housing Mgr (Shaw) (R)
Vernon E. Tobey (Yokota) to GS-0819-12, Ch, Engr and Env Plan Mgr (Andersen Guam) (R)
Leonard Quglio (Minn-St Paul, IAP Minn.) to GM-0801-13, Deputy BCE (Kelly) (R)
Rufino Landayan (Clark) to GM-0801-12, Ch, Env and Contract Plan (Clark) (P)
William B. Green (Little Rock) to GS-0830-12, Mech Engr (AFRCE-CR)

PASS-IN-REVIEW

RED HORSE Roundup '84, the first gathering of all the past and present "horsemen" of any RED HORSE unit since its founding in 1966, was held Nov. 1-3 at Hurlburt Field, Fla. The event was hosted by the 823rd Civil Engineering Squadron and its commander, Col. Robert L. Bell.

Presentations, speakers, a parade and social events provided the entertainment for the more than 350 people who showed up to brag, tell war stories and reminisce about wearing the "red hat."

Presentations on RED HORSE capabilities

included well drilling, camp perimeter defense, aircraft load planning by computer, engineering, and soils testing techniques. The first day's events were capped off by a mixer at the 823rd compound, including a buffet supper, band, and slide shows, all produced by RED HORSE personnel.

A golf tournament at the Hurlburt Field golf course started the second day's events, followed with guest speakers on advancements in rapid runway repair and the Soviet threat. That afternoon the 823rd conducted a Pass-in-Review, complete with vehicles on parade and the 98th Army band from Fort Rucker, Ala.

The reviewing officers were Brig. Gen. W.T. Meredith (ret); Colonel Bell; Col. William J. Kornitzer Jr., commander, 2nd Air Division, Hurlburt Field; and Col. Roy M. Goodwin, HQ TAC/DE, Langley AFB, Va.

That evening 220 people attended a banquet at the Hurlburt NCO Club. The guest speaker, General Meredith, spoke on "The Foaling of RED HORSE."

This gathering was the first, setting the stage for the next Roundup in '86 when once again the men of the "Horse" will get together and toast the finest—RED HORSE.

PETER GUST ECONOMOU, international president emeritus of the International Food Service Executives' Association, receives a special plaque from Col. Jerry A. Smith, commander, HQ Air Force Engineering and Services Center, Tyndall AFB, Fla., at the IFSEA convention, Las Vegas, Nev., last summer, recognizing him for the long-standing support to the Air Force food service honors program, the Hennessy Award, which is given credit for inspiring excellence in food service worldwide. IFSEA is among the Hennessy program sponsors.

TRIER CITY'S guestbook is signed by Maj. Gen. Clifton D. Wright Jr., Director, Engineering and Services, HQ USAF. Chief Mayor Zimmerman is standing, fourth from the right. Brig. Gen. Joseph A. Ahearn is standing three from the left. He is deputy chief of staff, Engineering and Services, HQ U.S. Air Forces in Europe. Col. Jerry A. Smith, commander of HQ Air Force Engineering and Services Center is left of General Ahearn. Mayor Zimmerman said, "American guests are always welcome to us." General Wright noted Trier for its many beautiful architectural monuments. The delegation made a visit to Germany's oldest city and saw many examples of early architecture.

HORSEMEN HONORED

Thirty-four men from the 823rd Civil Engineering Squadron, Heavy Repair, Hurlburt Field, Fla., were awarded the Air Force Commendation Medal and the Air Force Achievement Medal during a special ceremony on Oct. 19. Maj. Gen. Clifton D. Wright, Jr., Director, Engineering and Services, HQ USAF, presented the awards.

The awards came at the end of a 20-month project to construct a $3.5 million Sensor Test Complex at Eglin AFB. RED HORSE constructed three target bases consisting of 32 facilities, 10 miles of roads, four target ranges, 12 miles of overhead and underground high voltage power lines, three deep wells and complete water and sewage distribution systems. One of the most complex CONUS RED HORSE projects ever, it provides outstanding training for over 150 RED HORSE personnel while saving the Department of Defense $1.9 million.

SERVICES AWARD WINNERS RECOGNIZED

Winners of 11 Services awards were honored during special ceremonies at Homestead AFB, Fla., Dec. 13, at the 1984 Worldwide Engineering and Services Conference. Maj. Gen. Clifton D. Wright Jr., HQ USAF/LEE, presented the awards. Cited were:

- Air Force Innkeeper Award (large category) — 86th Services Squadron, Ramstein AB, Germany (USAFE)
- Air Force Innkeeper Award (small category) — 366th Services Squadron, Mountain Home AFB, Idaho (TAC)
- Outstanding Services Unit of the Year — 3700th Services Squadron, Lackland AFB, Texas (ATC)
- Civilian Services Technician of the Year — Sheila Fischer, 366th Services Squadron, Mountain Home AFB, Idaho (TAC)
- Military Services Technician of the Year — TSgt. George Fields, Jr., 754th Radar Squadron, Port Austin AFS, Mich. (TAC)
- Civilian Services Supervisor of the Year — Robert J. Pohlmann, 3700th Services Squadron, Lackland AFB, Texas (ATC)
- Military Services Superintendent of the Year — SMSgt. Rogers L. Collins, 475th Services Squadron, Yokota AB, Japan (PACAF)
- Civilian Services Manager of the Year — Allen C. Taylor, 3345th Services Squadron, Chanute AFB, Ill. (ATC)
- Military Services Manager of the Year — Capt. John C. McClelland, 43rd Services Squadron, Andersen AFB, Guam (SAC)
- Senior Civilian Services Manager of the Year — Vernon F. Birgenheir, 6510th Air Base Group, Edwards AFB, Calif. (AFSC)
- Senior Military Services Manager of the Year — Maj. Dick P. Flack, Air Force Commissary Service Headquarters, Kelly AFB, Texas (AFCOMS).

Innkeeper Awards

Ramstein AB's overall achievements in improving customer services and facilities in a very difficult environment earned them the coveted Innkeeper Award (large category). They were cited for modernization, strong management, and a dedicated work force that provided vastly improved quality for the very large transient load.

Mountain Home AFB received the Innkeeper Award (small category) acknowledging their ability to provide customers with commercial-quality accommodations. Evaluators keyed on the overall pleasing atmosphere, consistency of customer service and amenities provided all travelers, and overall aggressive management.

Outstanding Services Unit

Billed as ATC's "biggest and best," Lackland AFB was recognized for overall outstanding services at an extremely large and diverse base. Specifically cited were achievements in food service, billeting, clothing issue, mortuary affairs, Prime RIBS, furnishings management, linen exchange, and consumer advocacy.

For the first time, runners up received awards. They are:

Innkeeper, large category: 1st SVS, Langley AFB, Va. (TAC); Innkeeper, small category: 432nd SVS, Misawa AB, Japan (PACAF); Outstanding Services Unit: 43rd SVS, Anderson AFB, Guam (SAC); Civilian Services Technician: Ton Su Han, 51st SVS, Osan AB, Korea (PACAF); Military Services Technician of the Year: SSgt. Teresa H. Evans, 11th Tactical Control Group, Elmendorf AFB, Alaska (AAC); Civilian Services Supervisor: Pietro Florio, 40th Combat Support Sq., Aviano AB, Italy (USAFE); Military Services Superintendent: SMSgt. Thomas Ashe, 3245th ABG, Hanscom AFB, Mass. (AFSC) Civilian Services Manager: Ursula L. Yates, HQ USAFE/DEHS, Ramstein AB, Germany (USAFE); Military Services Manager: Capt. Larry E. Garber, 10th SVS, RAF Alconbury (USAFE); Senior Civilian Services Manager: Jim Skiles, HQ ATC/DEH, Randolph AFB, Texas; Senior Military Services Manager: Lt. Col. Donald M. Bray, 317th SVS, Pope AFB, N.C. (MAC).

Innkeeper Award (large category)

Innkeeper Award (small category)

Outstanding Services Unit

Civilian Services Manager

Pohlman, as billeting desk supervisor at Lackland AFB, spearheaded the base's implementation of the Billeting Automated Management System (BAMS). His initiative and expertise were key contributors to a successful transition to computer operations at Lackland AFB and improved conversion procedures for use at other ATC bases.

Military Services Manager

Captain McClelland was recognized for a long list of accomplishments as commander of the 43d Services Sq., Andersen AFB. Attesting to his strong management and leadership abilities, his unit accumulated an impressive array of high ratings on evaluations by higher headquarters and Inspector General teams.

Military Services Technician

As NCOIC of the Port Austin AFS dining hall, Sergeant Fields planned and coordinated an extensive facility upgrade that included a wide variety of new equipment and food service features. He was lauded for financial management procedures that provided patrons both quality and variety.

Military Services Superintendent

Sergeant Collins, food service superintendent at Yokota AB, was cited for consistently strong management and innovative training programs. His effort led to the base's nomination for the Hennessy Award for three consecutive years.

Senior Military Services Manager

Major Flack, as chief of the Subsistence Division, HQ AFCOMS, initiated numerous efforts that resulted in upgraded troop issue facilities, troop support to dining halls, warehousing, War Reserve Material posture, and bakeries. His contributions corrected many longstanding problems in subsistence support in both peacetime and wartime.

Senior Civilian Services Manager

As chief of Services at Edwards AFB, Birgenheir was lauded for superb management of financial and personnel resources that maximized both quality and quantity of base services provided at this isolated base in the Mojave Desert. Essentially every assigned military and civilian member, dependent, contract employee, and visitor benefits from recently improved services at the base.

Civilian Services Manager

As quality inspection supervisor at Chanute AFB, Taylor was a key contributor to his unit's selection as winner of the 1984 Hennessy award. His managerial ability resulted in development of restaurant operations at Chanute that surpass many commercial industry standards.

Civilian Services Technician

As lead billeting clerk at Mountain Home AFB, Idaho Fischer is listed as a prime driving force behind the pleasant, clean, relaxing atmosphere visitors find during their stay. Her efforts resulted in back-to-back TAC Innkeeper Awards in 1983-84, and the base's subsequent selection as the Air Force Innkeeper.

MCCLELLAN AFB TO GET 49 MEGAWATT POWERPLANT

The Air Force has signed a unique agreement with California's Sacramento Municipal Utility District that will allow construction of a 49-megawatt power plant on McClellan AFB in California. Ground-breaking ceremonies were May 25.

SMUD is financing the plant, which will be built on three acres of the base. The land was leased to SMUD for 30 years at a cost of $1. The Deputy Assistant Secretary of the Air Force for Installations, Environment and Safety, James F. Boatright approved the installation.

Sacramento ALC repairs and ships aircraft and aircraft components to front-line positions of the U.S. Air Force and to 56 allied nations. Should a massive power outage occur, the new plant will prevent any break in the normal workday activities at the base.

SMUD officials expect to have the plant operational by July 1985.

TRAINING SITE ACTIVATED

The PACAF Prime BEEF/RIBS contingency training site at Kunsan AB, Korea, was activated Oct. 29. The 475CES, Yokota AB, deployed 60 Prime BEEF personnel and the 18SVS, Kadena AB, deployed six Prime RIBS personnel to go through the first 5-day training session. Prime BEEF and RIBS teams from Kadena, Clark and Misawa ABs were also deployed the following weeks to go through this training.

The training was task-oriented to simulate a wartime scenario. Upon arrival at the training site, Prime BEEF commanders were immediately faced with the task of bedding down their forces. Billeting and hard-backed latrine and shave/shower tents were all erected during the first day of training. On subsequent days, the teams were also tasked with installation of an airfield lighting kit, revetment erection, contingency POL pipeline and fuel bladder assembly, and Erdlator operation. RRR training was also conducted on three large craters on an unused ramp area of the Kunsan AB airfield. The polyurethane fiberglass mat (PFM), AM-2 matting, and crushed stone repair techniques were all taught at the training site. MOS selection, EOR, command and control, and scab repair were also taught during the training. Special leadership training exercises were conducted throughout the deployment to force officers and NCOs to come up with creative and innovative solutions to unusual problems.

Throughout each deployment, Prime RIBS personnel provided field feeding using "A" rations, some "B" ration components, and MREs. Prime RIBS personnel received training in M-2 burner and immersion heater operation, menu subsistence, accounting, field hygiene and sanitation, field cook tent setup, and search and recovery.

The training cadre for both the Prime BEEF and Prime RIBS training was made up of members of Det. 1, 554CESHR, Kunsan AB. The training superintendent for the entire operation was SMSgt. Krugle, also from Det. 1. All equipment (tents, heaters, kitchen equipment, airfield lighting kits, etc.), vehicles and radios to support this training were borrowed from WRM resources.

The training at Kunsan was a tremendous success. A second training session is scheduled in May and June 1985. Training will also be conducted at the site for those Prime BEEF teams participating in TEAM SPIRIT '85. ★

An aerial view of the Prime BEEF "Rodeo" grounds at Dobbins AFB, Ga.

300 to 400 (Prime BEEF) people in field conditions...

Rodeo!

by Sgt. Marvin Gardner
Associate Editor

The first true multi-command Prime BEEF "Rodeo," was held Oct. 1-5 to test the proficiency of 15 civil engineering teams in emergency force beddown and contingency force operations. The 20-person teams represented Air Force Logistics Command, Air Force Reserves, Military Airlift Command, Tactical Air Command and the U.S. Air Force Academy.

Made up of seven events, "the purposes of the competition are to demonstrate the readiness of the Prime BEEF force to react on short notice and provide cross talk and newer ways of doing things," said SMSgt. Berry L. Grier, NCOIC of the competition.

Previous rapid runway repair competitions were sponsored by U.S. Air Forces in Europe. Last year the Air Force Logistics Command and the Air Force Reserve participated in the first CONUS Prime BEEF rodeo at Hill AFB, Utah. This year the Air Force Reserve sponsored the event at Dobbins AFB, Ga.

"Basically we had to prepare a site at a location that could have three to four hundred people in field conditions, feed them, and prepare a place for them to rest and spend their off-duty time," said Col. Frank Stephens, Prime BEEF camp commander.

Once the site was selected the next problem was to logistically bring all the equipment necessary to accomplish all the necessary tasks into one location and then set the equipment up and put into operation.

"This didn't happen just over night. For about the last four months all the representatives held several meetings and the plans and the desires and the problems that could be foreseen were worked out and pretty well solved.

"That included the ground rules, the camp rules and transportation requirements to get all the people as well as the equipment moved into the campsite area," Colonel Stephens said.

Air Force Reserve was tasked with

SSgts. Robert N. Wallace and Kirby J. Stephens 419th CES Hill AFB, Utah, compete in the surveying event.

Members of the 419th CES, Hill AFB, Utah finish construction of a field latrine during the expedient methods portion of the competition.

the logistic ground work required to bring materials to the site. AFRES also assigned SMSgts. Larry Kalivoda, Jim McKay along with Sergeant Grier to make sure the logistic tasks took place.

"These three people connected with the main overseer of the whole operation, who I functioned with all the time, Col. Jim Penn," said Colonel Stephens. Colonel Penn is the assistant deputy chief of staff, Engineering and Services at HQ AFRES, Robins AFB, Ga.

The competition started in concept immediately after last year's event which was basically between two commands, AFLC and AFRES.

"Many other teams observed what took place last year. As a result of that, the little slice of the pie of the total Air Force last year went to maybe close to half of the pie this year," he said.

The colonel noted that the time it took to build a hard back tent this year was approximately a third of last year's time. (See accompanying article.)

"That's almost a 200 percent increase in combat efficiency or efficiency in building tents which could directly contribute to making a unit combat ready in a theater where ever in the world they may be called upon to put a force of people at a bare base operation into a full-fledged Air Force operation," Colonel Stephens said.

Force Beddown

Force beddown was the first of the competitive events which included hard back tent erection as well as soft back tent erection and expedient methods.

Competitive events were scheduled Oct. 2-4 with a special competition Oct. 5, that saw the best of the active duty forces against the best of the reserves. Teams arrived by Sept. 30 to get settled and familiarize themselves with the area.

Competitive tasks were selected that represent a cross section of Prime BEEF mission requirements that could be judged fairly in a competition. Each task was defined and weighted according to a relationship to the Prime BEEF mission and the difficulty of accomplishment.

Each team competed for a maximum of 1,000 points. In some events the team score was based on the total of individual performances other events were scored on the team's overall performance in relation to the performance of the other teams.

In the Force Beddown event all 15 teams competed simultaneously to determine who could build the best hard back tent frame in the shortest time. Teams were provided with lumber and other materials needed to construct a 15'6" wide by 31'6" long by 10' high hard back tent frame. Teams were allowed to use seven carpenter tool boxes and two interior electric tool boxes with contents as indicated in Air Force Regulation 93-3. Power tools were not allowed during this part of the competition.

Each hard back tent was evaluated based on team performance, quality of work and completion time. Times were ranked from fastest to slowest. The quality of work and team performance points were awarded by a panel of judges who evaluated how well each team worked together and the quality of the final product.

A 100 points was awarded to the fastest team. An additional 50 points could be earned for meeting dimension specifications, craftmanship and the appearance of the

covered frame.

A maximum of 25 points were awarded for the soft back tent while the expedient methods portion, which included hardening the hard back tent and erecting a field latrine counted for a maximum of 40 points.

Winners: First place—McClellan AFB, 182 points; second place—Hill AFB, 170 points; and third place Wright-Patterson AFB, with 157 points.

EOR

In Explosive Ordnance Reconnaissance, a maximum of five people could be used on each individually competing team. Each team reported to the command post at a specified time. Up to three members of the Damage Assessment Team (DAT) were dispatched to the simulated air strip.

At the beginning of the time period, the DAT would establish an entry control point and enter the area. The team had 15 minutes to report their findings by radio to the team members in the command post. Points were given for accuracy and correctness of reporting. A maximum of 100 points per team was awarded.

Winners: First place—Hill AFB, 82 points; second place—Wright-Patterson AFB, 63 points; and third place—Robins AFB, 60 points.

Equipment Operations

The Equipment Operations event was an evaluation of operator skills. Six-person teams competed, with two teams competing against each other. Phase I of the exercise involved four people, a dump truck, a grader and a front-end loader for each team.

Each team backed a dump truck down a tightly designed course with the aid of a spotter, loaded it with a front-end loader and then drove forward to specified point where its load was dumped. The material was then graded until all windrows above 4 inches were eliminated.

Phase II of the event involved two peole—a tractor/trailer operator and dozer operator—negotiating a similarly challenging course. A tractor/low boy trailer was backed up to a loading dock and loaded a bulldozer. The tractor then backed up to another dock and off-loaded. Teams were graded on the total completion times.

Winners: First place—McClellan AFB, 200 points; second place—McChord AFB, 190 points; and Wright-Patterson AFB, 180.

Getting them fed

by Sgt. Marvin Gardner

The task of feeding approximately 400 people involved in the Prime BEEF competition three meals a day fell on the shoulders of a Prime RIBS team made up of 21 people from 10 units throughout the United States.

Preplanning of the site was accomplished by SMSgt. Larry Kalivoda, Headquarters Air Force Reserve, who acted as an overseer and helped take care of any logistic problems that arose.

Menus were planned in August and food had to be ordered and placed into the commissary service before the competition. Preventive maintenance also had to be performed on the equipment prior to use.

Equipment used during the competition included M-2A burners, field ovens, immersion heaters and two refrigerator trucks, one for storing food the other used for thawing.

"Preparation of food was easy compared to getting everyone processed through and sitting down. We have 130 seats here, that's a big dining hall.

"The problem logistically is just getting them through there and getting them all fed, so we had to stagger the times," said Capt. Bennie Liggins, reserve food services officer, 94th Civil Engineering Squadron, Dobbins AFB, Ga.

Shifts in the dining hall began at approximately 4 a.m. and ended with a clean up at night. Prime Ribs members worked 10 to 11 hour shifts because they had to pull their own KP, according to Captain Liggins.

An unforeseen problem arose when wind created havoc on the serving line but civil engineering people built a plastic barrier which solved it.

"The cooperation here between the Engineering and Services sides of the force has been outstanding," Captain Liggins said..

Surveying

In the Surveying event eight teams of four people competed at the same time. Each team surveyed a course of five angles and five distances. Scoring was based on accuracy. The distance from the starting stake to the course-end stake was measured and compared to the calculated end point. Teams were ranked for accuracy from the smallest difference to the largest difference.

Winners: First place—Hill AFB, 100 points; second place—Holloman AFB, 96 points; and the U.S. Air Force Academy team, 92 points.

Weapons firing was done under the control of the small arms training people. Five people were selected from each team. The weapons were M-16s adapted for 22 long rifle ammunition. Weapons were fired from eight positions with five rounds per position.

Winners: First place—tie between Wright-Patterson AFB and Holloman AFB, N.M., with 86 points each; second place—tie between Robins AFB and Dover AFB with 84 points.

RRR

In the Rapid Runway Repair event 13 people were allowed to compete per team. Each team assembled a standard RRR mini-kit with side-pull attachments. Helmets and liners were worn in the event. Approximately three to five minutes into the competition gas attacks were simulated requiring participants to don gas masks. Scoring was based on time.

Winners: First place—Holloman AFB, 200 points; second place—Langley AFB, 190 points; and third place—F.E. Warren AFB, 180 points.

The written test was taken by all members from each team. All teams were tested at the same time. Team members took the test individually and were scored as a team.

Winners: First place—F.E. Warren AFB, 63 points; second place—tie, Hill AFB and the Academy, 56 points.

When all the points were added and the dust cleared McClellan AFB emerged victorious with Wright-Patterson AFB and Holloman AFB receiving second and third place respectively.

FINAL STANDINGS

2852nd CES, McClellan AFB, Calif. (AFLC)

2750th ABW/CES, Wright-Patterson AFB, Ohio (AFLC)

833rd CES, Holloman

ABOVE: Members of the 436th CES Dover AFB, Del., compete in rapid runway repair event.

LEFT: Brig. Gen. David Cornell, deputy chief of staff for Engineering and Services, AFLC, makes a point during an interview at the competition site.

BELOW: A1C Ernest Chapman, 2854th CES Tinker AFB, Okla., fills a dump truck during the vehicle operations event.

AFB, N.M. (TAC)

2849th CES, Hill AFB, Utah (AFLC)

446th CES, McChord AFB,Wash. (AFRES)

1st CES, Langley AFB, Va. (TAC)

90th CES, F.E. Warren, Wyo. (SAC)

419th CES, Hill AFB, Utah (AFRES)

2853rd CES, Robins AFB, Ga. (AFLC)

7625th CES, USAF Academy, Colorado Springs, Colo.

907th CES, Rickenbacker ANGB, Ohio (AFRES)

2854th CES, Tinker AFB, Okla. (AFLC)

436th CES, Dover AFB, Del. (MAC)

905th CES, Westover AFB, Mass. (AFRES)

445th CES Norton AFB, Calif. (AFRES)

"I think the competition had been much smoother this time, the times are greatly improved in almost every particular area. I feel that some of the competiton has been tightened up. More rugged courses in some cases. Overall the main effect of it is that the people have gotten smarter. They know how to do things better, quicker and more efficiently.

"This year we had most of the CONUS U.S. Air Force commands—SAC, TAC, MAC, AFLC, the U.S. Air Force Academy and AFRES. But you've still got all the other engineering forces world-wide.

"People in the Pacific, people in Europe, Alaska and other parts of the world that need to bring in their expertise and show how they can do these different skills.

"That is where the big advantage comes in. The more people we get involved, who are the best in their command, bringing forward the best that that command has got to offer, becomes an education in itself," said Colonel Stephens.

Brig. Gen. David Cornell, deputy chief of staff for Engineering and Services, AFLC, said that future plans are on the drawing board for other Prime BEEF competitons to further test our civil engineers in potential combat situations.

"Future competitions might include new rapid runway repair techniques, use of portable airfield lighting systems, installation of expeditionary aircraft arresting barriers, and many other systems that are still under development. We must be ready for whatever the future brings, and it is competitions such as the one at Dobbins AFB that will help us reach levels of proficiency needed to meet challenges of the future," General Cornell said. ★

Skill-sharpening time

by Sgt. Marvin Gardner

"I think really the main purpose of this competition is to sharpen the skills necessary for combat readiness of all engineering units in the whole, total U.S. Air Force," said Col. Frank Stephens, camp commander for the Prime BEEF Rodeo.

"It teaches all the other commands the best way and the quickest way of accomplishing the mission. An example that comes to mind of that is last year.

"Before last year's competition the average time to build a hard back tent was three to four hours. Due to methods that were developed last year that time has been cut down to a third. Now a hard back tent can be built in about an hour's time, without any power tools," Colonel Stephens said.

The colonel is a reserve mobilization augmentee at the Air Force Logistics Command. Seven different units have been under his command. He attributes his success in these different commands to being a "people engineer."

"I started in the Air Force right after high school at the age of 17. I guess it just became a part of me. You've heard the old saying, 'You can take the boy out of the country but you can't take the country out of the boy.'

"I think that's what happened to me, the boy got out of the Air Force but the Air Force is still in the boy, so I had to get involved in it again," the camp commander said.

After a 5-and-a half-year break to attend college, the colonel discovered the Air Force Reserves. He describes the duties and jobs he's had in the Air Force as being challenging.

"I have worked in the U.S. Air Force in almost every aspect—aircraft operations, aircraft and vehicle maintenance, security police and supply. I've been a logistics plans and mobility officer. As of seven years ago I became an engineer," Colonel Stephens said.

When not involved in reserve activities he works for the Cleveland Board of Education. He is the adminsitrator of the Aviation High School in Cleveland, Ohio.

Vocations taught there include airframe and powerplant, avionics, air traffic control, along with distributive education courses in aircraft parts marketing, warehousing, distribution and sales, in addition to required high school courses for graduation. The school is approved and certified by the Federal Aviation Administration.

"Everything that I orchestrate in the school system is basically geared to the way the various Air Force schools I attended were organized and were taught. Some very technical schools that I attended during that time gave the basis as to how I've continued to run the civilian operations which are basically just like every AFSC the Air Force has got.

"The vocational training in the U.S. Air Force, which is one of the biggest training organizations in the world, has worked out an awful lot of the bugs, so I have implemented many of those things into the Cleveland School System. If somebody looked at my course of study outline they'd almost be looking at a minature Form 623, only adapted a little better to civilian occupations.

The theory behind this, according to the colonel, is if it works for the Air Force why not use it for the smaller organizations.

"It's hand in glove really," Colonel Stephens concluded. ★

tecnotes

HEATER EXCHANGER DESCALING — CALMAL 22, a product of A.C. Limited of North Miami Beach, Fla., was evaluated under an Air Force contract by Radian Corporation of Austin, Texas. Analysis showed that CALMAL 22 is an aqueous solution of 0.07 normal ferric chloride, 1.8 normal hydrochloric acid and trace amounts of organic additives to function as surfactants, detergents, and chelating agents. Based on the test data obtained and the cost of supplies to perform the cleaning, the CALMAL 22 cleaning solutions appear to be approximately four times as expensive as the standard inhibited hydrochloric acid solution. Cleaning capability, time to clean, and ease of cleaning were similar for a solution of 60 percent CALMAL 22 and for a solution of 10 percent inhibited hydrochloric acid. BCEs may use the product as a descaling agent if container labels clearly identify the contents as hazardous and the price is competitive with the generic components used in MIL-STD-796 descaling agent preparation. (HQ AFESC/DEMM, Mr. Myers, AUTOVON 970-6358)

ADVANCED BATTLE DAMAGE REPAIR SYSTEM — The binder placement unit (BPU), which will be used to mix, meter, and pump the polyurethane materials to form a structural cap repair, has been designed and prototype fabrication is under way at the contractor's facility. Major components have been successfully tested. Prototype testing is scheduled to begin in January. The BPU will be shipped to Spangdahlem AB in Germany by late March, 1985, for use during SALTY DEMO. (HQ AFESC/RDCR, Lt. Gardetto, AUTOVON 970-6324)

TECHNOLOGY TRANSITION INITIATIVES — The increasing complexity of Engineering and Services technologies has led to the development of a more systematic technology transition program at HQ AFESC. The effort, outlined by AFESCR 800-1 (Product Transition), bridges the gap between the research and development community and the user. Under these guidelines, Technology Transition Plans, or TTPs, will be generated to detail the actions necessary to develop, procure, and support a new product, and will identify responsible organizations, schedules, and resources for each action. The TTP is intended to be a useful management tool for both top-level management and the action officer. (HQ AFESC/RDX, Maj. Blackwelder, AUTOVON 970-6297)

FIRE FIGHTER PHYSICAL FITNESS — Fire fighting, especially aircraft crash and rescue operations, requires extremely intense physical effort that demands a high degree of aerobic capacity. A two-part program is being developed which includes the use of an exercise bicycle for increasing aerobic capacity and a universal exercise machine for increasing muscular strength. The program will provide for individualized the routines by testing, then establishing, a specific improvement/maintenance exercise routine tailored to the individual fire fighter. A technical report detailing the work accomplishment and a recommended physical fitness program will be available for implementation in early 1985. (HQ AFESC/RDCS, Mr. Grimm, AUTOVON 970-6277)

AIR FORCE INDUSTRIAL WATER TREATMENT PROGRAM, AFR 91-40, covering an improved industrial water treatment program, was published Sept. 24. The new regulation supersedes AFM 85-31 and Chapter 3 of AFM 85-12. A contract has been awarded to Pioneer Laboratory, Inc., Pensacola, Fla., to support the program. The contract laboratory will periodically distribute water samples to Air Force bases for "check-analysis" testing and, on request from the base, provide laboratory supplies and reagents for in-plant testing at the base. (HQ AFESC/DEMM, Mr. Myers, AUTOVON 970-6358)

COAL SAMPLES NEED PROPER IDENTIFICATION — We have received information from the Defense Fuels Supply Center that not all of our coal-burning bases are properly identifying coal samples, which makes identification and traceability of delivered coal difficult. To alleviate this problem, our samplers need to ensure that the following information is submitted with each sample:

- Contractor name
- Contract number
- Name of activity and sampler (or sampler ID number)
- Quantity sample represented in tons
- Dates of receipt of coal samples
- Lot number (if delivered by truck) or
- Rail car number

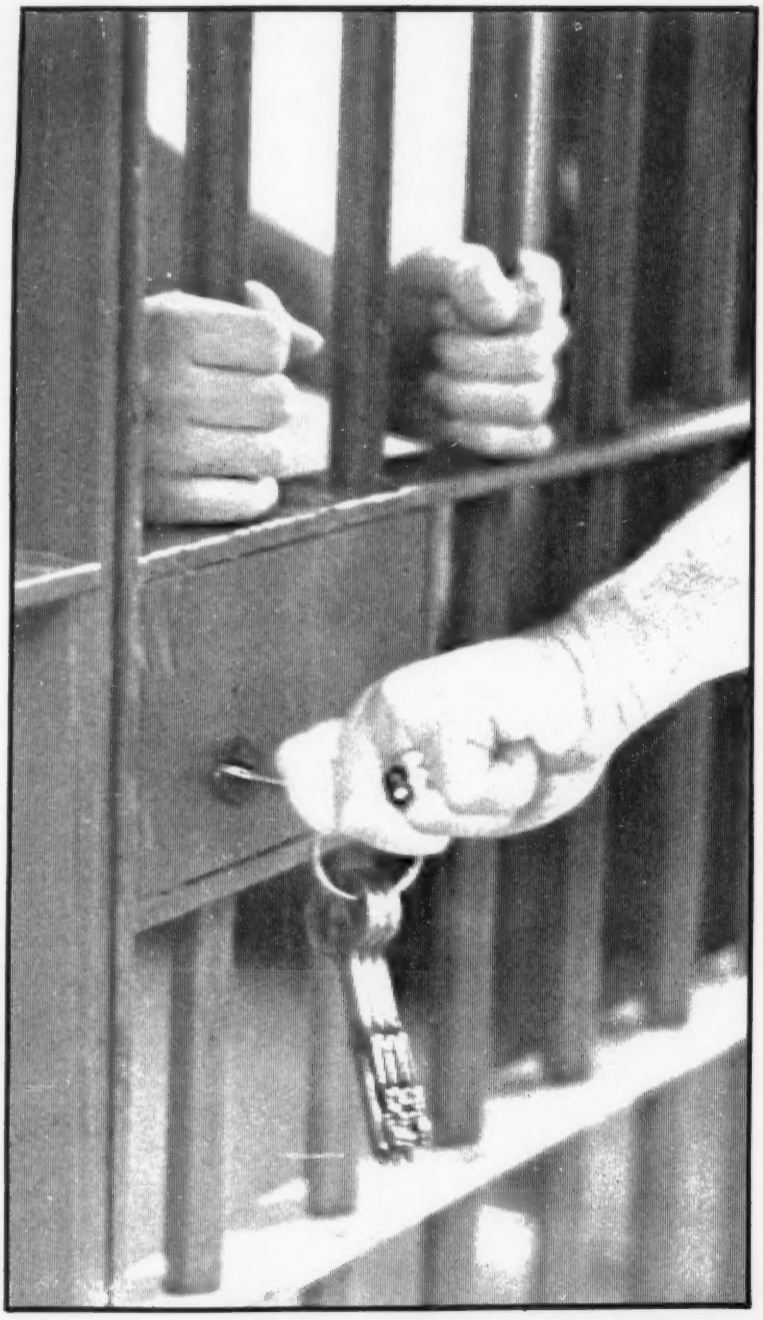
In addition, samples submitted should not represent more than 1,000 tons of coal. (HQ AFESC/DEMM, Mr. McDonald, AUTOVON 970-6352)

ENERGY SECURITY — The final technical reports summarizing the energy security assessments conducted by Los Alamos National Laboratory at AFLC's air logistics centers (ALCs) have been printed. This work focused on the existing energy supply and distribution systems which feed Wright-Patterson AFB and Newark AFS in Ohio, and the five major ALCs. Results of this effort are contained in two volumes. Volume I is an unclassified executive summary. Volume II, classified Secret, is the detailed technical report of existing AFLC energy vulnerabilities, potential mission impacts and approaches to reduce these vulnerabilities. (HQ AFESC/RDCS, Capt. Vitucci, AUTOVON 970-6271)

Don't break the rules

by Lorrena M. Lamb

Air Force Engineering and Services people deservedly take great pride in their ability to "get the job done." Over the years, even when faced with monumental tasks, at home and overseas, they have lived up to their reputation to "go anywhere, do anything" in spite of manpower cuts, budget restrictions, and other seemingly insurmountable obstacles. In today's Air Force, the abilities and achievements of the engineering community are acknowledged and respected by commanders at all levels, and these people are recognized as a vital part of the team which sustains combat capability. To accomplish mission requirements, however, civil engineers must do the job within the ground rules levied on them. This poses many challenges, but the greatest challenge is dealing with the constraints of funding. We must mind our money. We must abide by the limits that the Congress imposes on Air Force appropriations used by the engineering community. To do otherwise is a violation of the law.



3679 Violations

In the past, violations of Congressional limitations on public funds, wherever stated, were reported to the President and the Congress as violations of Section 3679 of the Revised Statutes, as amended. These violations were commonly known as "3679 violations." Public Law 97-258, enacted Sept. 13, 1982, changed this. Provisions of the old Section 3679 are now found in various sections of the revised Title 31 of the United States Code. Now violations are reported under the section of Title 31 applicable to the case. The familiar "3679" will not be soon forgotten.

In 1983 the Air Force experienced an alarming increase in violations of rules governing fiscal control. The numbers tell the story. During 1983, 85 potential violations surfaced, including some in the engineering community. To date, in 1984, nine more have been discovered for a total of 94. In comparison, only 17 cases were reported between 1973 and 1982.

Of these 94 cases, 11 (including two in the engineering community) were determined not to be actual violations, and the cases were closed. Figure 1 shows the rules that were broken in the remaining 83 cases, the total number of violations in each category, and the number attributable to the engineering community.

The Rules

Now, what are the rules we must obey or else report to the President and the Congress what we did wrong? Where are these requirements stated in law? They are found in:

- Title 31 of the United States Code;
- Annual DOD Authorization and Appropriation Acts;
- Title 10 of the United States Code;
- The Annual Military Construction (MILCON) Authorization and Appropriation Acts; and
- AFR 177-16, Administrative Control of Appropriations. (This regulation is issued under the authority of 31 U.S.C. 1514(a) and has the same force and effect of law.)

The thrust of these laws and regulations, simply stated, is that we cannot obligate or spend any money before Congress gives it to us, and then we cannot spend more than we get. Funds must be used for the purposes for which appropriated and for no others, unless some other use is specifically authorized by law. We must abide by all other limitations imposed on public funds by law or regulation. Breaking one of these rules is a violation of the law and must be reported to the President and the Congress. Those responsible for the violation are subject to appropriate disciplinary action which can include suspension from duty without pay or removal from office. Upon conviction for a violation, knowingly and willfully committed, those responsible each could be fined up to $5,000, imprisoned for up to 2 years, or both.

In addition to the standard requirement to have the money in hand before an actual obligation is incurred, the engineering community must operate under numerous other rules established by Congress.

Real Property Maintenance

Each year in the DOD Appropriation Act, Congress sets aside some Operation and Maintenance (O&M) funds to be used only for real property maintenance (RPM). These amounts or "floors" are not limits on total obligations for real property maintenance. Congress doesn't care how many more available O&M dollars we spend on RPM, but if these specified amounts are not used for RPM, we give the money back. However, it is a reportable violation if these funds are used for purposes other than real property maintenance.

Figure 1

Categories of Violations
Jan. 1, 1983 - July 31, 1984

	USAF	E&S
Exceeding Allotments, Obligation Authorities, or Limits on Funding Documents	14	2
Noncompliance with Statutory Requirements	9	-0-
Improper Use of Funds	8	1
Exceeding Limit on Use of O&M Funds for Minor Construction	6	6
Improper Fiscal Year Funding	3	-0-
Exceeding MFH Lease Cost Limit	2	2
O&M Funds Used for MFH Minor Construction	2	2
Unfunded Obligations	1	1
Exceeding A&E Cost Limit Subject to "Report and Wait"	1	1
Alleged Violations of Bona Fide Need Rule (Pending Legal Review)	37	-0-
	83	15

Title 10 of the United States Code

Title 10 abounds with rules for the engineering community. Congress seems to come down hardest on the engineers. The sections relating to unspecified military construction, leasing of family housing, and facilities for reserve components figure prominently in the violations which have occurred in the engineering community.

Minor Construction

The 10 U.S.C. 2805 deals with unspecified minor construction. This section defines a minor military construction project as a single undertaking at a military installation with an approved cost equal to or less than the maximum amount specified by law, currently $1 million. The "law" referred to is the annual MILCON Authorization Act (see Figure 3). If a project costs 50 percent or more of the legal limit, then the Secretary must approve it in advance and notify the appropriate Congressional committees, give the justification and the estimated cost, and then wait 21 days. MILCON funds must be used for these projects except that O&M may be used for projects costing not more than 20 percent ($200,000) of the specified maximum. This section does not apply to construction of new Military Family Housing units.

AFR 86-1, Chapter 5, Unspecified Military Construction, implements the provisions of 10 U.S.C. 2805. Paragraph 5.5 cautions that the obligation of funds in violation of the provisions of AFR 86-1 violates 31 U.S.C. 1341 (formerly RS 3679) and is subject to investigation under AFR 177-16.

Leased Family Housing

Leasing of family housing is authorized by 10 U.S.C. 2828. The Secretary of the Air Force may lease family housing units in the United States, Puerto Rico, and Guam. No more than 10,000 may be leased at any one time. Expenditures for renting of these units (including the cost of utilities, maintenance, and operation) may not exceed the maximum annual domestic family housing unit lease amount set by law. However, the Secretary is allowed to lease 500 housing units at a cost of not more than 120 percent of the maximum rental set by the MILCON Authorization Act. The leasing of family housing units under this authority is being phased out in the Air Force.

Figure 2 gives the status of these 83 cases. As indicated in the chart, 37 cases, including some relating to real property maintenance, involve the *bona fide* need rule and require legal clarification. It is expected the lawyers will rule that in some of these cases, the proper fiscal year funds were used and, therefore, violations did not occur.

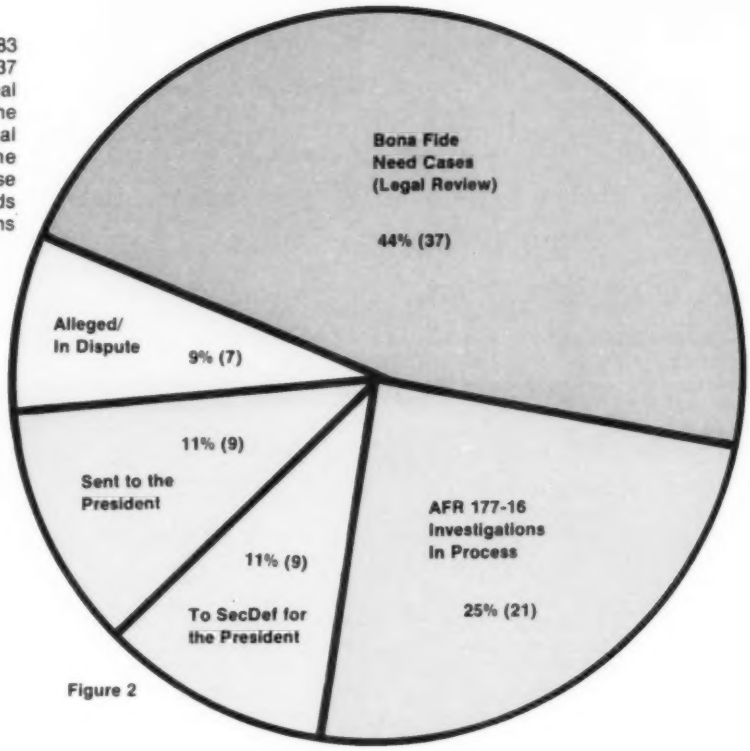


Figure 2

The Secretary also may lease a limited number of family housing units in foreign countries under similar provisions. Under certain special conditions, the Secretary may waive the maximum lease amount on no more than 200 of the units. Section 2828 also contains a "report and wait" provision. If the average estimated annual rental under the proposed lease for family housing facilities, or for real property, exceeds the amount set by law, the Secretary will notify interested Congressional committees and wait 21 days. Interim Message Change 83-1 to AFR 90-4 states that the annual lease cost per dwelling unit will be stated in the annual budget authorization (B/A). There is also an annual budget lease program guidance letter or message from HQ USAF , Directorate of Engineering and Services, Housing and Services Division.

Reserve Components

Dollar limits applicable to the use of funds for construction of facilities for reserve components are spelled out in 10 U.S.C. 2233a. This section authorizes the acquisition, construction, maintenance and repair of facilities for reserve components, as well as contributions to the states for these purposes. If the total expenditure or contribution for any of the purposes authorized will exceed $200,000, the Secretary of Defense must notify the Congressional committees of the location, nature, and estimated cost, and then wait 21 days. Under such regulations as the Secretary of Defense may prescribe, a project authorized under this section that costs $50,000 or less may be carried out with O&M funds. AFR 86-12 lists these and other limits and approval channels applicable to Air National Guard and Air Force Reserve facilities.

MILCON Authorization Acts

As stated before, the annual MILCON Authorization Act establishes certain dollar limits applicable to funds used by the engineering community. These are the limits referred to in Title 10 which must be specified by law. Figure 3 shows the limits cited in the FY85 MILCON Authorization Act.

Limits Set By DOD or Air Force

Limitations may also be imposed administratively (by DOD or the Air Staff) to give binding effect to expressions of Congressional intent in hearings or in the legislative history. An example is the statement of Air Force policy in AFR 86-1, Chapter 5, that no more than 15 percent of each command's O&M facility project-by-contract program will be minor construction. It has been DOD, and Air Force, policy to impose such limits to carry out the intent of Congress. If we do not comply with the intent, Congress will make the limit law, and then we have no choice.

AFR 177-16

Finally, AFR 177-16 is the umbrella under which the Air Force system of fund control operates. It implements DOD Directive 7200.1 which establishes DOD policies and procedures for the administrative control of appropriations consistent with Title 31 and OMB Circular A-34. AFR 177-16 prescribes the Air Force policies designed to enforce the financial discipline associated with limitations imposed on funds used to accomplish the Air Force mission. It should not be viewed as an entrapment regulation, but as a guidebook to the pitfalls to be avoided in managing our funds.

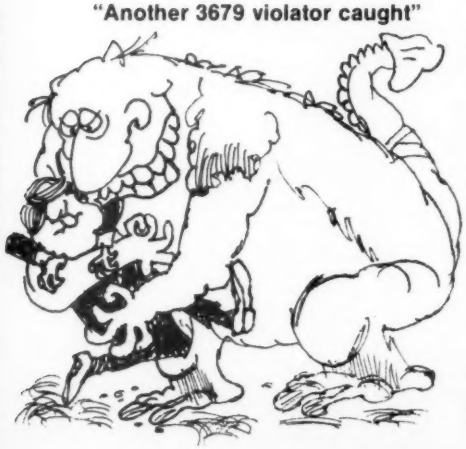
AFR 177-16 explains fund control in the Air Force and what constitutes a violation. It requires that a formal investigation be conducted when an actual violation occurs to determine what rule was broken, how it happened, who was responsible, and what needs to be done so that it won't happen again. Appropriate disciplinary action must be imposed on the person or persons responsible for the violation and the facts and circumstances in the case must fully justify the action taken. Of course, if it is proven that the violation was knowing and willful, the law imposes a fine of not more than $5,000,

imprisonment for not more than two years, or both.

DOD requires that the holder of the funds, that is, the commander or head of the activity to whom the funds were issued, be identified and an evaluation made of how he or she exercises these fund control responsibilities. The holder would not be named in the violation report unless his or her actions contributed to the violation. The holder of the funds (the commander) has certain specific responsibilities to ensure that the funds issued are used only for the purposes authorized and that obligations and expenditures do not exceed available funds. In an Aug. 19, 1983, letter, the Air Force Vice Chief of Staff reminded MAJCOM commanders of their responsibilities as a "holders of funds."

Some special rules apply to statutory limits on the use of funds. Some of the limits imposed on the engineering community are absolute and exceeding them is a reportable violation. In other cases, the amount stated in the law may be exceeded if the proper approval or reporting requirements are met before an actual obligation or expenditure is made. If these requirements are not met prior to making an obligation, a reportable violation has occurred. The amount of the violation in any of these cases is the total dollar amount involved and not the amount by which the limit was exceeded. This is because funds are not available for any part of the obligation if the limit on the use of funds is violated. The same rules apply to limits imposed by DOD or the Air Force.

"Another 3679 violator caught"



There is no requirement to report anything but actual violations. Every legal aspect is examined to make sure that what appears to be a violation has actually occurred before the Secretary of Defense sends a report to the President and the Congress.

How Violations Occur

Violations occur because of failure to follow the rules for recording obligations, failure to observe the limits appearing on funding documents, and, sometimes, because of honest mistakes in interpreting the rules applicable to a particular transaction. The correction of an error may eliminate the problem in one account but create a violation in another. Project splitting and improper classification of work account for some violations of the statutory limit on the use of O&M money for minor construction. This should not be as great a problem now because the new guidelines in AFR 86-1 permit each building to be considered as a project. The pressures of mission accomplishment can also bring about violations that might not otherwise occur. Such violations sometimes involve the use of funds for purposes other than authorized.

A number of violations have been uncovered as a result of Fraud, Waste and Abuse Hotline calls, and by the routine audits of the Air Force Audit Agency or the DOD Inspector General. Others of course are discovered during periodic in-house reviews or reconciliations. Ideally, violations should not be there for the auditors or someone else to find because they should not occur in the first place. Knowing the rules and which pitfalls to avoid should automatically reduce the potential for violations. The revised Chapter 5 of AFR 86-1 is a giant step forward in bringing about a better understanding of the rules the engineering community must follow and the impact of a violation. In addition, stronger emphasis by commanders on strict adherence to the rules and regulations will make the job of the engineer much easier.

Beware of Violations

The upward trend in the number of violations in the Air Force must be reversed or our credibility with the Congress and our image with the public will suffer. "Engineers are facilitators," but money is the life blood of engineering achievement. The constraints are tight and the challenges great, but engineers can get the job done using the proper funds and complying with all the rules.

In the current environment of tighter fiscal controls and greater scrutiny of defense spending, it is more important than ever that we not only accomplish mission requirements, but that we do it within the ground rules that higher authority and Congress have levied on us. Your help is needed! ★

Lorrena M. Lamb is a systems accountant for the Directorate of Plans and Systems, Air Force Accounting and Finance Center, Denver, Colo. She is author of AFR 177-16, which prescribes Air Force policy and requirements to implement the intent of Congress and the Office of the Secretary of Defense for the control and use of public funds. She has a bachelor of Laws degree from George Washington University Law School. Her pre-legal studies included corporate and appropriation accounting. She later studied Automatic Data Processing at American University in Washington, D.C.

Directorate of Engineering and Services

Current Emphasis

READINESS

Product Management, (DEOX) — A new division has been created within the Directorate of Readiness at the Air Force Engineering and Services Center to transition readiness products from the AFESC R&D Laboratory. Essentially, a product developed by the laboratory will be managed by the new division which will function as a system program office. It will ensure that testing and integrated logistics support requirements are accomplished prior to a product reaching base level. DEOX will also be the AFESC POC for air base survivability issues. (HQ AFESC/DEO, Lt. Col. Windham, AUTOVON 970-6124)

Civil Engineering Materiel Acquisition System (CEMAS) — System testing at Tinker AFB shows material response time better than any support system used today. The total CE inventory can now be managed through the ability to automate bills of materials, document all transactions, and automatically issue residue assets when requirements are submitted. CEMAS has greatly increased responsiveness and enables management to deter fraud, waste and abuse. Interfaces are planned with base supply and the new base contracting automated system (BCAS). Training, documentation, and other program requirements are being supported by an Air Staff, MAJCOM/Base working group concept. The Air Force Logistics Management Center (AFLMC) LGS has provided an innovative stockage/reorder program. The goal of this HQ USAF/LEE/LEY/RDC project is to implement CEMAS as the standard support system for CE, beginning in FY 86. (HQ AFESC/DEMG, Lt. Col. Wadlington, AUTOVON 970-6386)

Cryogenics Operations and Maintenance — HQ USAF/LEY, in coordination with HQ USAF/LEE, MPM, and MPP, has requested AFMPC to convert all AFSC 545X0 cryogenics positions (approximately 200) to AFSC 631X0 with a Special Experience Identifier 037. This action will separate cryogenics from refrigeration and air conditioning and place the responsibilities of cryogenics production under one functional manager within liquid fuels. The proposed procedure to make the transition is to fill 545X0 cryogenics positions by 631X0 personnel as the incumbent rotates to a new assignment. AFMPC is still staffing the proposed conversion. (HQ AFESC/DEMG, Capt. Chang, AUTOVON 970-6380)

Prime BEEF Training Manpower Additive — Advance copies of the Prime BEEF training manpower additive were sent to MAJCOMs in September. This additive identifies the manpower requirement associated with Prime BEEF unit training, specialized site training, and deployments. Air Force recognition of the manpower required for this vital CE effort is a real milestone in documenting the resources required to meet the mission. (HQ AFESC/DEMG, Capt. Poloskey, AUTOVON 970-6379)

CIVILIAN CORNER

Review Briefs — After you have arrived at a base and have settled down in your new position, it is normal for CCPO personnel to code your new duties and enter them in the Personnel Data System-Civilian (PDS-C). They then send you a copy of your career brief for review.

When this occurs, do not just look at the entries for your current position—review the entire brief. For some unknown reason, your past coded experience may change. In one case, an individual lost MAJCOM experience and the period of time in the MAJCOM was reflected as additional time at his base-level location prior to his PCS to the MAJCOM. In another case, an individual had entered Civil Service in 1961. When she went PCS in 1984, her experience from 1961 to 1974 was dropped out of PDS-C. This was Central Skills Bank transfer so her name continued to come through on Candidate Referral Rosters for career positions. With the prior experience, the individual was fully qualified to be referred—without it, her name would not be referred.

The prime point is—Don't give your career brief last priority, your interest in its accuracy determine whether your name is referred (or not referred) for a position you have been working toward.

Training — The Engineering and Services Civilian Career Management Program (ESCCMP) held their first Training and Development Panel meeting in San Antonio on Nov. 8, 1984. The Panel meeting was a very productive one. The Panel's charter was established, selection criteria for training courses were determined, and nominees for some of the FY 85 training courses were ranked. In addition, the Panel chairman, Gary Flora, Technical Director of AFRCE-BMS, assigned the various panel members to newly created committees. These committees will formulate policy that will direct and guide the training and development aspects of ESCCMP. Remember, to be eligible for training through ESCCMP, you must be a registrant in the program. Since we are just beginning our Training and Development Program, we would appreciate any suggestions you may have for selection of courses. You may send your suggestions to OCPO-MPKCE, Randolph AFB, Texas, 78150-6421 or call AUTOVON 487-6388/6843.

HOUSING AND SERVICES

AFR 90-9 Revision, published in October 1984, implements several policies recommended by the major commands. The new guidance revises permanent party billeting, and TLF assignment priorities; provides new management options for MAJCOMs and base commanders; provides for automated UPH assignment records and BAQ waiting lists; introduces logic charts to help billeting employees determine quarters eligibility and funding responsibilities; and establishes a definitive, standardized reservation system with specific guidance on certificate of nonavailability determinations. The revision also adds information and guidelines on the Quarters Improvement Committee, formerly contained in AFR 140-1. A more detailed summary of AFR 90-9 changes can be found on the regulation's signature page. (HQ AFESC/DEHS, Lt. Col. McSwain, AUTOVON 970-6177)

Testing Food Service Incentive Contracts — To demonstrate performance incentives in base services contracts, a series of tests has been scheduled. HQ AFESC/DEH/DEM and MAJCOMs involved are assisting HQ AFLMC/LGC in developing the contract packages and test data requests. The first test contract award has been made at Nellis AFB for food service attendant contract services, effective Jan. 1. (HQ AFESC/DEHF, Mr. Dylla, AUTOVON 970-6195)

Flight Feeding — HQ AFESC/DEHF and U.S Army Natick Research and Development Center (NRDC) conducted a progress review and redefined goals for a project to update Air Force flight feeding systems with the state-of-the-art. Emphasis was redirected to passengers as well as crew members. System development to encompass menus, packages/containers, equipment (galley) compatibility, and a survey of systems private industry is considering for the future. Project also includes a training package (sound on slide) for flight kitchen personnel. (HQ AFESC/DEHF, Mr. Jacobi, AUTOVON 970-6215)

COMPUTER TERMINAL

WIMS/SIMS Acquisition Status — The acquisition to support the WIMS/SIMS program, the Air Force Mini-computer Multiuser System (AMMUS), was approved by the Assistant Secretary of the Air Force for Finanicial Management in September 1984. The Source Selection Advisory Committee (SSAC), chaired by Brig. Gen. Brown, Deputy AF/SI, approved a December release of the RFP. (HQ AFESC/AD, Col. Aldinger, AUTOVON 970-6455)

Services Information Management System (SIMS) —

- PROTOTYPE — A purchase order was placed on Oct. 17, 1984, to lease Wang hardware/software for the Davis-Monthan AFB prototype. All functional software, except food service, is ready for prototyping beginning in January. Projected completion date for food service software is Feb. 28.
- Data Project Directive (DPD) — The DPD, approval and tasking document for the SIMS program, was signed by HQ USAF/SI on Nov. 9. (HQ AFESC/AD, Capt. Cox, AUTOVON 970-6205)

Alternative Financing/Third-Party Financing — An Air Force Program Policy Memorandum, AFEPPM 85-1, Oct. 25 has been distributed. This AFEPPM explains third-party financing and defines current Air Force policy in their area. (HQ AFESC/DEB, Mr. Beason, AUTOVON 970-6461)

ENERGY

Life-Cycle Costing Handbook—A life cycle costing handbook for evaluating the cost effectiveness of ECIP projects has been prepared and is being sent to the field. This handbook is a guide to understanding the life cycle costing method and an aid to calculating the life-cycle cost statistics. It provides blank worksheets and example project calculations for MCP, MFH and O&M projects. The method and evaluation procedures set forth in this handbook are to be followed by all Air Force agencies for all ECIP projects in existing buildings and facilities owned or leased by the Air Force unless specifically exempted. (HQ AFESC/DEB, Mr. Santoro, AUTOVON 970-6475)

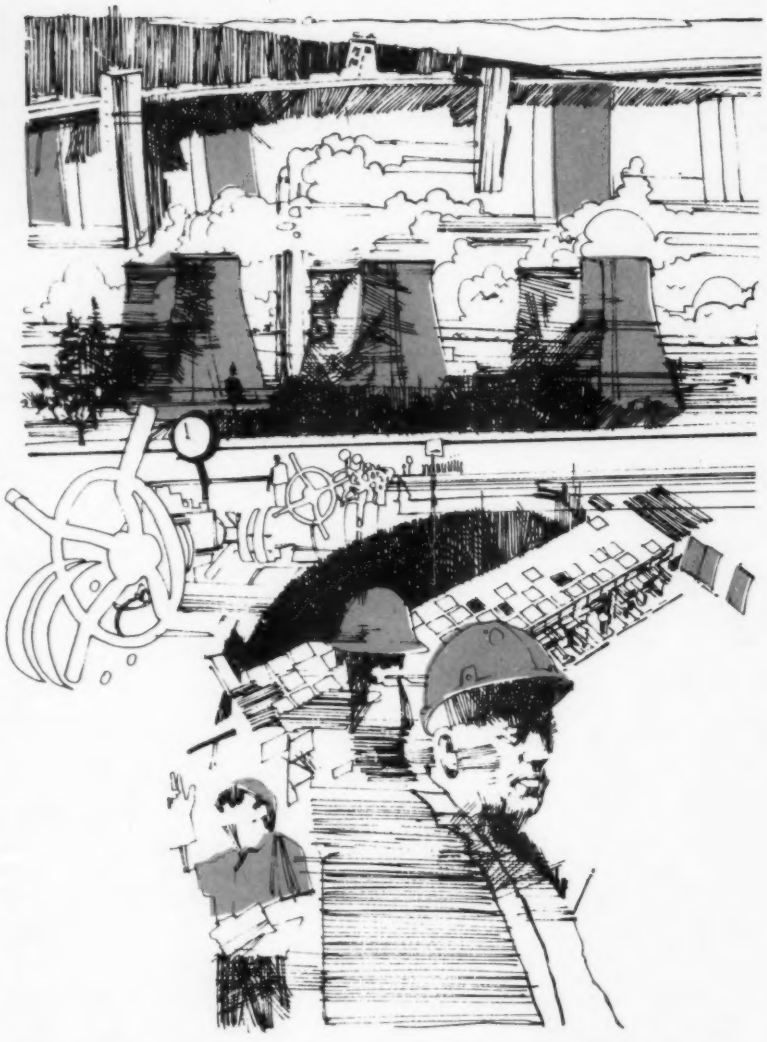
Hangar Energy Conservation—Hangars often require great quantities of energy for space heating and are good targets for conservation efforts. A joint project with the Naval Civil Engineering Laboratory has produced DEB-TR-84-01, **Hangar Heating Energy Conservation Manual.** Based on several years of joint research, the manual provides details on 30 easy low- to moderate-cost measures that can return high energy savings in hangars. The manual has been distributed to MAJCOMs for further dissemination to bases. (HQ AFESC/DEB, Mr. Hathaway, AUTOVON 970-6466)

Energy Security—Nearly all MAJCOMs are developing or have completed installation energy vulnerability assessments in response to AF/LE June 18 letter to ALMAJCOM/CC. The high quality of reports received reflects the dedication and commitment of all personnel involved and will take us a great step forward in ensuring energy support to peacetime and wartime missions. Reports are now being reviewed to consolidate required programs and identify key areas for technology transfer to correct energy security shortfalls. (HQ AFESC/DEB, Mr. Hathaway and Maj. Odom, AUTOVON 970-6470)

Nuclear power—A formal agreement has been signed with the Department of Energy for a joint project to determine the feasibility of using small-scale reactors to provide secure energy to key mission facilities. For handling any and all inquiries on this subject, Air Force personnel are reminded to refer for guidance to SAF/PAM message 212100Z Feb 84 to ALMAJCOM-SOA/PA/DE/XO/LG. (HQ AFESC/DEB, Mr. Hathaway, AUTOVON 970-6466)

The good ole' days

EDITOR'S NOTE: Air Force facility energy reduction as referenced below, when measured against the 1975 baseline in BTU/SF, was 15.3 percent for existing buildings. The 11.8 percent figure refers to gross BTUs.



by Steven M. Huff

The energy required to operate an Air Force installation is tremendous. In fiscal year 1983, 188.3 *trillion* British thermal units (Btu) were used to "energize" Air Force facilities. In 1975, the Air Force consumed 213.4 *trillion* Btus for installation operations. Over this 9-year period, Air Force consumption has been reduced by 25.1 trillion or 11.8 percent. As we all know, there is no free lunch—and utilities cost! In 1983, purchased energy for installations cost $940.4 million; in 1975, the total bill was $324.8 million. During this time, purchased energy usage decreased by 11.8 percent, while the annual cost increased by 190 percent.

The 1984 Air Force Energy Plan figures cited above do not include the nonenergy water and sewage services, but the content of this article applies to these purchased utility services as well.

To assist those who must manage Air Force resources—both physically and fiscally—this article will present the factors and events that may force the Air Force utility supplier to increase utility rates and at the same time increase Air Force O&M costs.

The Good Old Days

Let's consider the past to gain a present and future perspective.

Each month when the electric and natural gas bills come in, there is no one who would not like to see the "good old days" reappear. The good old days were back in the 1960s when electric rates were being slashed because load growth and plant efficiencies caused larger profits than those authorized by regulatory commissions. Inflation was almost nonexistent then, and any price increases based on the Consumer Price Index were unheard of.

In the good old days, electric generating plants were coal-, natural gas-, or oil-fired. Each fuel was, by today's standards, cheap and plentiful, regardless of the source or the supplier.

For natural gas, federal price controls kept the wellhead cost (the producer's sales price), fixed well below 50¢ per thousand cubic feet (Mcf). Natural gas was quite plentiful in the good old days. Until 1974, the

idea of curtailing supplies due to shortages was only a hypothetical condition until it became a reality.

At one time, natural gas companies battled the electric companies for new customers as well as increased customer consumption. In the good old days, the all-electric home was a competitor of the gas water heater, gas range, and gas dryer. The natural gas whole-house heating and air conditioning systems became alternatives for electric base-board resistant heat. Utilities even offered discounts to customers using an "all" system as an incentive.

These events became "good old days" when inflation started escalating to double-digit sums and, when the oil embargo cut oil supplies, causing prices to skyrocket. The culminating factor was when the electric utilities (already short of costly fuel oil and now generating more with natural gas) and the natural gas utilities failed to meet their customer requirements and interrupted service.

Positive changes have taken place over the last decade to correct or maintain inflation; to reduce electric generating dependency on foreign and domestic fuel oil; to provide pricing incentives to natural gas producers to find, drill, and market new supplies; and to encourage energy conservation at all levels. Some of these changes, however, are generating increased utility prices.

While the good old days are gone, there are several "heads-up" signals one may respond to in this period of rapidly increasing utility rates.

Public Utility Company Overview

An overview of the utility industry and how it is generally regulated is necessary to see why utilities request increases in rates and charges.

Utility companies, although operating in a monopolistic environment (or, as the only game in town), are like other retail and wholesale businesses in many respects. The biggest differences are in competition, pricing, and profit. Utilities do not have to compete for customers. Their service territories are assigned to them with a mandate to provide continuous and reliable service at the lowest possible rates. Utilities are expected to provide for load growth through new plants and sources of supply. The utility service price, or rate, is set by regulators, based on certain lofty principles: the rates must be just, reasonable, and not discriminatory. A great mass of laws, rules, regulations, court decisions, and precedents establish the fundamentals of ratemaking.

Probably the most complicated aspect of pricing faced by regulators is determining a profit for the utility. When a utility company agrees to provide service at rates established by others, then it fully expects to be allowed an opportunity to earn a reasonable return on the investment required to provide fixed-rate service. Utility rates have the profit embedded; it is called the return on the investment or rate of return.

The return for utilities comes when the rates are designed to recover all prudently incurred costs of providing the utility service (operation, maintenance, energy costs, depreciation, and all taxes), *plus* an amount calculated to provide earnings for the company to reinvest in additional plants and facilities and pay shareholder dividends. The dollar amount of the rate of return allowed is calculated by a percentage applied to the utility plant in service.

The rate of return is allowed, not guaranteed, by regulators. The company is responsible for managing costs so the authorized return is earned. Whenever the company's rate of return drops below the authorized levels, the company is sure to file for increased rates. To do otherwise, theoretically, would endanger the company's ability to provide service and cause shareholders to miss dividends. The explanation and overview are purposely simplistic and provide background to discuss the factors that signal utility actions to raise rates.

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Today's Causes and Events

Several specific causes and indicators today may warn that a utility is about to raise rates. All these indicators will be reflected on the "bottom line" of the utility company income statement. For a utility, the bottom line is the earned rate of return on investment which, again, is allowed as a condition of operating as a regulated monopoly. The following indicators are applicable to both investor-owned and public-sector (municipals and cooperatives) utility operations. Specific cases and examples have been omitted due to the rapidly changing nature of the utility industry itself. Today's consumerism, regulatory reforms, and legislation-in-progress also may tend to complicate specifics. Therefore, these signals encompass both natural gas and electric utilities (and water and sewage services to a lesser degree) without regard to specific regions, companies, and/or events.

Interest Rate Increases and Stock Market Fluctuations

Interest Rates. The interest utilities pay on borrowed funds and fixed debt (bonds) is considered an essential cost of doing business. The financial markets and their investors determine the interest rates. Many aspects of our economy also influence interest rates. The total money supply is the basic interest rate determinant. Inflation, government deficits, and corporate earnings, growth, and performance are several others. When the electric or natural gas company must pay higher interest, rates must be adjusted to accommodate the added costs. Municipalities, with their tax-free debt issues, are a part of the market and their interest rates are set similarly. Cooperatives usually find Federal financing where interest rates are set by law—and subject to change.

As with individual borrowers, utility interest rates are also based on one's ability to repay. The greater the ability to repay, the lower the risk, and consequently, the lower the interest

rate. Government securities are considered risk-free; the preferred customers of a bank pay the prime, or best, rate, while others pay more. Decreases in interest rates affecting one debt issue or borrowing may not affect utility rates immediately since utilities finance debt over longer periods of time and "lock in" interest.

The Stock Market. The performance of utility stock prices and the increases in dividends from 1980 to 1983, were positive. However, individuals and corporate investors may not have been as objective in evaluating the merits of the individual utility companies as they were in evaluating the industry as a whole. When bad news reaches Wall Street, a reaction is imminent. This reaction is usually initially overstated and a "correction" takes place later. Some firms never have the advantage of the correction and the stock price continues to remain low.

Many utilities have even seen the market prices of their stock drop below the stock's book value (simplistically, the net worth of each share). And one may expect a "meltdown" in the stock price of a particular utility prior to the start-up of a major plant or addition. The increased operating costs, depreciation, and repayment of debt that accompany new plants will cause lower earnings and reduced cash flows, unless rates are adjusted fully to make up the differences. Utility commissions are often asked to set a rate of return that will include a factor for a poor or below-book-value stock market price. This factor increases the return and subsequently, the rates.

Nuclear Power Plants

Many investors perceive nuclear utilities to be a riskier investment than non-nuclear utilities. Compared with the stock market as a whole, nuclear utilities were, until recently, thought to be relatively safe investments. However, some fear that a multibillion dollar project will collapse on the utility, and this will cause other investors to flee and take their money elsewhere. This flight by investors increases the chances of the nuclear plant's failure. Today there is $15 billion on the books in cancelled nuclear plant costs. A possible $40 billion may follow. Plant cancellation and abandonment costs must be recovered through rates.

Many utility commissions are authorizing a write-off of cancelled and abandoned plants over time, usually 15 years. This amortization increases rates, sometimes quite dramatically, depending on the length of time and amount of amortization. Even with completed nuclear power plants, some states are not permitting the full cost of the plant to be included in calculating the rate of return. It seems the financial community is recognizing this fact of life and they are bailing out—with different views of the utility industry which was previously permitted to recover *all* costs and earn a return on *all* plants in service.

Bond and credit rating services (such as Standard and Poor's and Moody's) look at utilities individually and historically, not generically as investors may tend to do. Since 1980, many electric industry ratings appear to have been polarizing at the tops and bottoms of the rating scales (for example, AAA or BBB). Utilities with nuclear plants under construction generally move to the ratings's bottom, causing higher interest rates and financing costs. Non-"nukes" are given higher ratings, and enjoy lower financing costs.

After a nuclear plant comes on line, it needs a 1- to 2-year start up to obtain peak performance. During this period, the utility may purchase higher cost power from other utilities and then pass these costs along to customers through increased fuel adjustment costs. The costs of a nuclear plant's eventual demise—decommissioning—will increase rates; as will the costs associated with nuclear waste disposal and reprocessing.

Many estimates abound on the rate increases customers will face due to nuclear power plants, finished or unfinished. All are based on many different factors, but the range is significant (increases of 2 percent to 88 percent). The unexpected is to be expected in rate increases associated with nuclear power plants.

Natural Gas Deregulation

Prices for natural gas have remained stable recently. Some analysts believe price deregulation scheduled for January 1, 1985, will force wellhead prices up for that supply of natural gas previously held at lower price levels. This will have an effect on the weighted average cost of gas supplies and will increase rates.

The Natural Gas Policy Act of 1978 (NGPA) established the deregulation process. A few of the price incentives have taken effect since then, but the predicted January 1985 increase or "spike" in costs may take place unless Congress acts to change the law. There have been many legislative proposals over the last year to modify the NGPA, though none have become law.

Since electric utilities also generate power with natural gas, price increases due to deregulation will be seen in electric rates and their fuel adjustment charges. Special marketing and incentive-type sales plans by the interstate pipelines may help mitigate initial NGPA-related rate changes. These special plans will help to reduce costs for the natural gas pipelines by limiting their exposure to contracted minimum purchase requirements.

Changes in the natural gas industry in marketing and pricing will surface at all levels. Cost increases may be on the horizon.

Changes in Sales Levels

A continuing decline in sales to industrial customers (as opposed to declines of commercial and residential customers) and highly effective conservation efforts by all customers may trigger requests for rate increases more quickly than many other indicators. When sales volumes decline, a utility's O&M and other fixed costs must be recovered from a smaller sales base, increasing the charge per unit (kwh, Mcf, gallon, MMBtu, etc.).

In 1983, total natural gas sales declined approximately 6 percent from 1982 levels. This decline established the lowest natural gas consumption level since 1965. Conversely, electric generation increased in 1983 by 3 percent from 1982 and set a new record. But electric generation at record levels does not begin to account for a much larger electric utility problem: excess plant capacity.

Installed plant capacity in excess of the company's peak demand requirements is at an all-time high in the electric industry. Excess capacity or plant reserve margins of 15 percent and 20 percent previously (in the good old days) were allowances or benchmark regulators accepted as necessary to provide for load growth. Today, with an average nationwide excess capacity of 40 percent, some utility regulators are often denying full-cost recovery of some excess plant capacity above a hypothetical

25 percent level. Shareholders are then required to support those plant costs not recovered through the rates. Other regulators are "phasing in" the excess plant capacity into rates to avoid dramatic increases (and oftentimes customer load losses).

Declining sales levels created by the economy in general, and by conservation in particular, are also affected by our slowing population growth and the displacement of energy-intensive industries by high technology and service-oriented ones. All these factors contribute to the problem. A new twist, and an added problem for utilities with excess capacity, is cogeneration.

Cogeneration is the use of waste heat (principally steam) from industrial and commercial operations to produce electricity. Utilities are required by law to purchase cogenerated electric supplies whether needed or not, creating more utility plant capacity. Though cogeneration is not yet a substantial power source, it is expected to grow and may have heavier impact on those utilities having only one or two industrial customers that are also providing the utility system with cogeneration.

With declining sales, conservation, excess capacity, and cogeneration, the electric utility has many cost-causing and rate-increasing factors to deal with.

Earnings Per Share

As discussed earlier in this article, shareholders expect a sufficient return to be earned by the company they invest in. It is difficult to ascertain investor expectations for a particular industry or for a particular stock. One can assume, though, that a decline in earnings will quickly prompt the utility to seek rate relief in an attempt to satisfy shareholder expectations.

The earnings per share figure is a measure of what the utility is earning for each share of stock issued. Earnings (or profits) are distributed to shareholders in the form of dividends. Earnings not used for dividends are kept by the company to provide internal financing of construction projects and ongoing major maintenance programs. Internal financing avoids the need for the utility to seek financing from outside sources. To use the earnings per share figure as a guide to a utility's financial health may be misleading.

An accounting device has been created to recognize and provide for the financing of utility construction programs. The Allowance for Funds Used During Construction (AFUDC) is the accounting technique that creates "paper" income. Ratepayers create cash earnings; AFUDC is basically inputted cash. With no cash on hand to support it, AFUDC makes up for the profit or return a utility is not allowed on unfinished projects (those projects not "used and useful," as regulators phrase it). Without AFUDC, the earnings of utilities with large construction programs would not be sufficient to cover the current dividend payout. Some utilities will borrow to meet their cash requirements for dividends because AFUDC is only paper money earnings. AFUDC is a calculational derivative of Construction Work in Progress (CWIP)—utility plant not completed and in service.

CWIP is not used. Under most circumstances, regulators are not considering this unfinished, non-revenue producing plant eligible for a return. Recently, however, the Federal Energy Regulatory Commission established a rule allowing use of 50 percent of total CWIP in setting rates. Some states have been allowing CWIP (in total or through phase-in) for some time. They are hoping to avoid sudden and dramatic rate increases when the new plant is completed, and to help financially strapped utilities keep afloat.

Financial statements generally show a utility's earnings per share. A comparison may be made as to the ratio of dividends paid out to total earnings. A high dividend-to-earnings payout ratio indicates more cash is required. Increased rates may be the answer.

The above factors, when taken as a whole, are clear signals that we may look forward to many more rate increases than we have seen in the last few years. Base civil engineering should be ready for this attack on the O&M budget.

Tomorrow's Rate Increases: What Then?

Air Force Regulation 91-5, Utility Services, provides the guidance and direction base civil engineers need to report utility increases to their major commands.

Utilities probably will be filing for increases at a more rapid pace. Regulatory bodies do not stand still. Many operate under statutory time frames in processing cases and giving a decision. Prompt base notification to MAJCOMs is a must if Air Force action is to begin before statutory deadlines pass. (In one state the deadline is 10 days after the company files.)

Since 1981, HQ AFESC/DEM has been evaluating utility rate increases and coordinating any ensuing intervention efforts. The Air Force (on behalf of the Federal government) presents the analyses and recommendations of independent utility rate experts at the utility commission's hearings. These experts analyze the utility's rate filing and prepare testimony on their findings for the regulators.

The experts' recommendations follow generally accepted rate-making principles and theories and serve as alternatives for the regulators to use in reaching a decision on the propriety of a rate request. In many cases (especially in the more rural locations Air Force bases may be located), the "voices" of large customers are seldom heard and regulators appreciate the outside findings and facts developed and presented.

Air Force intervention efforts have been notably successful in securing significant regulatory agency reductions in rate increases requested by utility companies. Timely intervention can greatly lessen the impact of rising utility rates on BCE budgets and save scarce O&M dollars available for other aspects of mission support.

Summary

We must recognize the "new dawn" upon us in the utility industry. Financially hard-pressed companies will be requesting rate increases more rapidly. The "good old days" have vanished in utility rate making.

Forecasting rate increases will never be an exact science, and the $1 billion the Air Force spends annually for purchased energy will, without a doubt, continue to increase.

Being aware of those subtle, almost hidden, causes leading to increases will provide some understanding of why the utility must increase rates, and possibly permit prior planning and decisions on ways to handle the utility's increase. ★

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